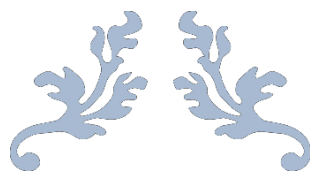




Universidade do Porto
Faculdade de Engenharia

FEUP



THE USE OF STORYTELLING IN THE PROCESS OF
CUSTOMER CO-CREATION FOR INNOVATIVE
SOLUTIONS



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Masters Dissertation

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Abstract

Understanding the use of storytelling and its contribution to the process of value co-creation is crucial for companies who deal with innovation and developed innovative solutions. Nowadays customers interact with solutions in different points and ways, and this is what represents the customer experience itself. In this Thesis, the researcher aims to develop a stronger understanding of value co-creation process through the exploration of the relationships between the users (customer, client) and their interaction with the technological solutions. To achieve this goal, it was developed a conceptual model able to promote the value co-creation in a business process, through the use of storytelling during the customer journey and customer experience. The Model will be applied in two distinct case studies, to exemplify how storytelling can become a business tool in a process of value co creation.

Finally, the purpose of the study is to provide and apply a strategic tool, the conceptual model itself, able to serve the market and therefore increase the levels of innovativeness and the value co-creation.

Keywords: storytelling, value co-creation, innovative solutions, interaction, customer experience, conceptual model, strategic tool, customer journey, innovativeness.

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1. Introduction

According to Durand (1997), stories are the world's earliest motivational skill in organizational environments. In a daily routine of a business, the ability to tell and share stories, is highly needed and appreciated. Talk about past events sometimes may explain the actual present, develop plans and communicate them as a future action, are just some quotidian examples that occurs inside a company.

The use of storytelling in the process of customer co-creation for innovative solutions constitutes itself a crucial input for the competitiveness of a business, especially companies connected with innovation. The value created and shared by both parties, company and a group of customers, stakeholders, suppliers or any other social actor is presented since the ideation phase until the exploration phase of the innovation process.

The concept of co-creation involves a collaboration of different actors, each one sharing and giving inputs always with the goal to innovate. In exchange, what results from that process is the potential benefits and improvements which contributes for the development of high innovative solutions, in a product or service format.

Over the past decade, research regarding the conceptualization of value co-creation was carefully developed and being now improved over the time. The definition of the concept started with (Prahalad and Ramaswamy, 2004), with the author's highlighting the role of the customers in the process of creation and evaluation of value. To extend and go deeper in the concept, (Vargo and Lusch, 2017) added that this value is co-created by multiple actors through processes of exchanging and integrating public, private, and market-facing resources (e.g. driving skills, roads, cars, and gasoline) in an effort to increase the well-being of both the actors and the system.

The researcher aims to develop a conceptual model that promotes the interaction between customers and innovative solutions developed by the company, to jointly increase mutual value for both parties.

By using the case study research approach, the study aims to pilot and test a methodology focused on the two main concepts, respectively, the storytelling and the value co-creation, and they will be applied in two solutions developed by the company. The intention of the methodology is to achieve better and improved innovative and creative solutions.

By the time of the research development, the author will be working at the company Digital Innovation Fyi.

1.1. Motivation

The motivation behind the choice of this topic is explained by the hybrid profile of the researcher, having a Bachelor degree in Sciences of Communication and Culture, and being a current student at the Master of Innovation and Technological Entrepreneurship in Faculty of Engineering of University of Porto (FEUP). Additionally the researcher received an invitation to work in a Company named Digital Innovation Fyi, as Product Manager. The willingness to study in-depth the use of storytelling in the process of customer co-creation for innovative solutions, together with the extreme proximity regarding the role performed by the author inside the company, as Product Manager, strongly contributed for the decision of developing this topic in this Master Dissertation.

The passion for communication, and its impact in the innovation's world, led the author to dedicate himself to search for the mutual value earned and shared inside a company. The author intends to analyze the value co-creation and its importance for the development of innovative solutions, strongly contributes for the challenge.

This new era is facing an extremely competitive business environment, and there is an increased need by the companies to constantly innovate and improve. Based on Literature Review, the researcher aims to conduct a study that intends to answer the following question: "How storytelling can contribute to the process of value co-creation?". The research question aims to explain how the concept of storytelling, in business context, interacts and promotes the value co-creation in innovative solutions. The reason behind this choice lies in the fact the topic selected raises a great curiosity in the author, due to the topicality that presents into the business context and the innovativeness that brings with its execution, meaning the process of co-creation in innovation environments. Additionally, the researcher is working as Product Manager in the company Digital Innovation Fyi, highly associated with innovation and innovative solutions, which strongly contributes for the performance of the Research Question selected. After exploring the state-of-the-art, the author found articles related to both concepts, storytelling and co-creation, but it was found a gap in what concerns the interaction between those two concepts: the storytelling and the value co-creation. This fact constitutes the reason why the author decided to pursue the research topic mentioned above.

The goal of the research is to create a model that links the usability of a service or product within the process of innovation.

1.2. Research Design

According to the authors S. Rajasekar, P. Philominathan, V. Chinnathambi (2006), the qualitative research is the methodology most appropriate for this research question due to the fact it is based on the explanation and investigation of the reasons why and how certain phenomena happen. The purpose of the Thesis is precisely this one, to understand and analyze "How storytelling can contribute to the process of value co-creation?" This study describes the interaction and collaboration between those main concepts, the storytelling and the value co-creation.

Based on that, the Researcher will explore the Master's Theme in the Literature Review chapter that will be followed by the Conceptual Model development chapter, and in the end comes the application of the model on two solutions selected (Case Study development chapter).

The reason of choosing the case study methodology lies on the fact that case studies are tools for generating and testing theory that provide strategic management field with groundbreaking insights (Penrose, 1960; Chandler, 1962; Pettigrem, 1973; Burgelman, 1983).

The researcher will be working in a Company, Digital Innovation Fyi, highly devoted to innovation, performing the Product Manager role. This fact empowered even more the choice of a Case study approach, since the case studies are typically carried out in close interaction with practitioners, and they deal with real management situations. Case studies represent a methodology that is ideally suited to creating managerially relevant knowledge (Penrose, 1960; Chandler, 1962; Pettigrem, 1973; Burgelman, 1983).

In order to conduct the study, the author will:

1. Primarily, the author will develop a methodological tool (visual model) that links storytelling with the co-creation process. With this model the researcher aims to study and focus on the “Exploration” phase due to the fact it is the stage where the solution is already developed and launched in the market. At this phase the interaction and collaboration between the users and the solution (product or service) can be followed and further analyzed;
2. Secondly, select two solutions, potential adopters of the concepts of storytelling and value co-creation, developed by the company *FYI Digital Innovation*;
3. Thirdly the tool will be wisely tested and further applied in the two solutions selected. Therefore two case studies will be developed based on that;
4. Finally comes the conclusion and the future improvements stage, where the tool can be implemented in multiple areas for different purposes. The goal is to create a scale and adaptable tool that is able to be applied in distinct sectors, and extract results/benefits from all of them.

1.3. Chapters' structure

After giving an introduction to the topic, the author dedicated herself in developing the Literature Review. The researcher focused on what have been already studied about the theme and performed a critical analysis in order to discuss the distinct perspectives according the authors. The scholarly writing on the topic of research helped to understand the gap of information related to the research question, and justified the need to investigate the topic selected.

After the Literature Review, comes the second chapter, which is dedicated to the conceptualization model for applying Storytelling in the process of value co-creation. The second chapter will start with a model that briefly explains the product development process, with the researcher highlighting the final phase of the process, namely: "Exploration phase". The choice of the "Exploration phase" lies on the fact that, products on this phase are already developed and launched in the market and due to that, the interactions between users/customers and solutions can be analyzed and followed. Right after, the chapter will be followed by the Conceptual Model, in general format, and the mythology associated and selected for the Model.

The third Chapter will be concentrated on a Case Study development. There were two solutions selected, being both of them monitoring systems. One of the solution is a monitoring system in Health area and the other one in the Culture Area. The third Chapter will analyze in depth each one of the solutions, based on a case study approach, as well as will apply the Conceptual Model developed in the previous chapter. These application will be visually available in the third Chapter.

Finally, the last Chapter will be dedicated to conclusions and respective future improvements regarding the Conceptual Model developed. The idea is to anticipate and adapt the potential benefits that the Model is able to bring to the market, in different scenarios and areas.

1.4. Limitations

The limitations of this research could be the timeline to be accomplished by the researcher (February-June, 2017). Since it is a Master thesis, the time to perform the research, and adding the fact the Author will be working in a full time job as Product Manager in *Digital Innovation Fyi*, will represent a challenge which the Researcher decided to take. This limitation has a double meaning, in the sense that, being an active member in the company, and being part as a Product Manager in a customer co-creation process could reveal at the same time a positive aspect in the sense it will bring business reality to this Master Thesis.

The author desires to experiment the real business context, and provide an important contribution to the academic world as well as for every entities connected to innovation.

Regarding the limitations in terms of research, there were two different case studies selected for which the methodology was applied. The choice of the technological solutions to create the case studies as well as the number of them, was based on, firstly, the potential to co-create by using the storytelling concept, and secondly, the time to perform the Master Thesis.

The reduced number of Case Studies constitutes a research limitation since its validation results are consequently limited.

The company FYI Digital Innovation is a small size company, which implies a limited choice in what concerns the potential technological solutions to be object of analysis of value co-creation through the use of storytelling, in business context.

2. Literature Review

In order to develop the research about the topic selected, the researcher did a search on Scopus regarding "*The use of Storytelling in the process of customer co-creation for innovative solutions*", to find articles, case studies, and documents that discuss the main topic. In Scopus, with the keywords "storytelling"; "co-creation" and "innovation" 165 documents were found, with the researcher highlighting the ones more related to the answer the researcher aims to get with the study of the topic selected. The articles selected are in the Appendices pages, in a table with the key-words "storytelling"; and "co-creation".

The structure of the literature review will be presented accordingly with the graphic displayed bellow. Firstly, it will appear the main concept of Storytelling and all its concept's ramifications, and secondly, it will be the concept of Value Co-creation and its co-related concepts. The main goal of the Literature Review is to provide a complete and clear understanding of the main concepts mentioned in the figure number 1.



Figure 1 Information Tree regarding the Literature Review structure. Source: developed by the author.

2.1. Storytelling

There is a lot of research regarding the use of storytelling, and its application in distinct contexts. For the purpose of this study the Researcher aims to present and discuss the application of the concept in a business and corporate environment, without stressing out the importance of storytelling in other realities.

The storytelling technique is considered to be an excellent business tool in diverse organizations areas. The art of storytelling is a communication tool that can be implemented in multiple environments: from Academic, entrepreneurial, corporate and business, there are a vast area that can improve and collect benefits from its technical and strategic use.

2.1.1. Concept of Storytelling

According to Oxford Dictionary storytelling definition is about the activity of telling stories, in general.

Costa, E., & Ferreira, J. J. P. (2012) have mentioned, in their paper, that according to DiMaggio, narrative analysis is *“the story that describes the process, or sequence of events, that connects cause and effect”*. Also, in the same paper, Kaye & Jacobson (1999) have designated the art of storytelling as *“the shared and collective act that enables people to place organizational actions into meaningful and relevant contexts”*, highlighting the importance of the actions, the characters who have performed it, their meaning, and the context in which they were inserted

Paul Greenberg (2013), in his article “The Narrative is the thing: the art of corporate storytelling”, mentioned the importance that Alan Berkson gave to the topic selected, due to the fact that exalts the need that all the corporate and organizational entities have in storytelling nowadays. The author defines corporate narrative as the *“story that embodies the essence of the business in action and the story that comprises the strengths and the weaknesses”*.

To prove the importance of storytelling and also to help business people to improve their communication skills, Mark Evans (2015) in his book *“Storytelling for Startups: How Fast-Growing Companies Can Embrace the Power of Story-Driven Marketing”*, teaches entrepreneurs how to learn and use the power of the storytelling in the marketing area. The author pretended to improve start-ups, the ones that are facing a fast growth, the ones that are still in an early-stage, as well as every company in general, to tell better stories through a guidance and tactical execution to develop messaging, marketing roadmaps and content.

The use of storytelling is also notorious in educational institutions, both in higher institutions and in elementary/primary school, as well as in multinational corporations.

Leon R.D and Vatamanescu E.M. (2015) classified the art of storytelling *“as a strategic skill that should be used to promote knowledge, share expertise and information, inside educational institutions”*. For that exchange of cognitive aspects, the authors gave the expression of “intellectual capital”. Still in the Educational field, Villalustre Martínez L. and Del Moral Pérez M.E (2014), presented the concept of storytelling *“as an innovative method to be performed by the future teachers, in digital format”*.

Following an entrepreneurship vision, the use of storytelling is also notorious in the entrepreneurship area, since it is appreciated in what concerns resource acquisition. Martens M.L., Jennings J.E., Jennings P.D (2007), points out the effects of storytelling on a firm's ability to secure capital. The narrative analysis proposed by the authors discusses the consistency between the stories told by an entrepreneur on an entrepreneurial organization, and the perception received from the investment side. The authors highlighted the importance on the communication skills, concretely, on the way a certain message is delivered, by an entrepreneur, and received on the other side, by the investment perspective. The way certain stories are told and shared is the deciding and key factor for the success or failure of ability to get funds acquisition.

Boudens, C. J. (2005) talked about the concept of “narrative analysis”, and define it as the analysis of a chronologically story (told by someone), based on how elements are sequenced, why is the evaluation made to some elements different from others, how the past molds one's perceptions of the present, how that present molds perceptions of the past, and how both mould one's perception of the future.

Regarding the business and corporate context, the context which the Thesis will be focus on, the storytelling and its use assume a different connotation. Corporate Storytelling is seen as a set of tools to reach more value inside organizations and, externally with their stakeholders.

Norlyk, B., Lundholt, M. W., & Hansen, P. K. (2014) defines storytelling in a business and corporate context as:

“Corporate storytelling designates private and public companies’ and organization’s strategic utilization of stories and storytelling (in the broad sense of humans being’s ability to tell and understand narratives) to create coherence and progression concerning the companies ‘or organizations ‘brand, identity and development. The term “story” does not follow the traditional narratological definition of a story (as proceeding from paradigmatic story/discourse distinction of narratology) when applied in the field of corporate storytelling. Corporate storytelling is a set of tools to reach a more value-based approach to the sense making of organizations and their stakeholders.”

In order to provide a clear summary about the impact of the Storytelling in distinct scenarios, the researcher developed a table with different concepts and perspectives towards the art of storytelling.

2.1.2. Table with different contexts and purposes of Storytelling

Table 1 Synthesis of Storytelling's contexts of action and its different purposes. Source: Developed by the author.

Storytelling's contexts action	
General definition of Storytelling	The activity of telling stories. Oxford Dictionary.
Storytelling in corporate and business context	<ul style="list-style-type: none"> Corporate storytelling is the set of tools that intends to achieve more value to organizations, and everyone who is actively involved in the business context. The ability that describes the business in a daily routine. The practice that allows the sharing of knowledge, experience and expertise in a business reality. The skill used during a learning process that contributes to the improvement of a Companies' performance as well as for the weaknesses' analysis of a company.
In Educational systems	<ul style="list-style-type: none"> A strategic skill to be potentially used to promote knowledge, share expertise, Experience, and information. A practice to be performed by future teachers, in digital format.
In Entrepreneurial narratives for resource acquisition	The strategic communication tool and skill that can increase on the entrepreneur the chance of better receive capital/external funds from the investment side. Analysis of the story told by the entrepreneur and the interpretation perceived from the investment side.
The purposes of storytelling	
Storytelling as Narrative analysis	<ul style="list-style-type: none"> William Labov developed a traditional narrative analysis, based on a personal experience told in face-to-face conversation. The story focus on the description and sequence of events, with the intervening characters, the place of the scene, the moment and the explanation and Connection why certain phenomena happen. The shared and collective act that enables people to transform simple actions into meaningful and relevant contexts.
Storytelling as a Business Tool	The Business Model Canvas (BMC) developed by Alexander Osterwalder is the business model that displays in a clear way a business plan of a company and with that, its story. The business plan is composed by nine blocks, being each one in interaction with the others, e.g., the customer segment with the value proposition and its relationships.
Storytelling as a Communication tool in business context	A tool and technique that improves communications skills. The ability to tell better stories, better position the voice, train the presence, the enthusiasm, passion and the rhythm and clarity of the speech.
Storytelling as valuable network exchange	A perspective provide by Verna Allee that is focused on the exchange of intangible assets (knowledge, expertise, e.g.,) into tangible assets (product, technology, system) inside a company. Indeed, the probability of a company to succeed depends on how efficiently a corporation is able to exchange values and transform one form of value into another one.

After reading these definitions, and their context of action, the understanding of storytelling is clearer than before. The storytelling can be seen as a soft skill able to create an enormous impact in the environment where it acts. As mentioned before, the use of storytelling is notorious in distinct environments, since the business/corporate, to educational systems, entrepreneurship and resources acquisition and marketing.

The use of storytelling can be either personal or collective, but in both cases the purpose is the sharing of knowledge, experiences and/or practices. Any individual or collective entity that uses the storytelling technique is, at the same time improving their communications skills. The storytelling practice should be also seen as an exchange of information, with receivers and senders, respectively, people responsible for receiving information, and people responsible for sending/sharing information.

To end up this summary, and be focused on the storytelling technique in the business context, the researcher concluded the use of storytelling is a daily need in the companies, since companies are constantly telling and sharing stories, in one way or another. Either to persuade and therefore conquer a client; either to share knowledge and expertise between employees and businesses partners, or just to analyze a company's performance.

2.1.3. Story Models applied in Business context

There are distinct modelling tools in the market that are able to tell a business plan story. The researcher selected the ones that considered more appropriate for the analysis of the Master's Dissertation.

The Story Models are "*The traditional narrative analysis*" developed by William Labov (1997), and the "*The Business Model Canvas*" by Alexander Osterwalder (2010).

Regarding Labov's Narrative analysis, it is based on personal experience told in face-to-face conversation, composed by six main categories. The first one is called "Abstract", meaning summarize the whole narrative, secondly the "Orientation" category where the scene is setting with the who, what, where and when; thirdly appears the "Complication action" where is made a description of the main events. The fourth category is named "Evaluation" and serves to justify the entire value of the narrative, the fifth is related to the result or resolution, meaning conclude the sequences of events. The sixth and the last one is "Coda", used for signaling the end of the narrative.

A distinctive and very straight-to-the point tool is The Business Model Canvas. Alexander Osterwalder (2010), in his book "Business Model Generation", developed a model that displays in a clear way a business plan and with that, tells the story of a firm. For Osterwalder and Pigneur (2010), the question is built on who are the potential clients with a certain need to target; the way a business is ruled and what it does and offer to the market; as well as the amount of money and resources needed for the sustainability and profitability of a company. The model is formed by a set blocks, each one with different elements, and the nine blocks establish and connect with each other through relationships and connections that explains the business plan of a company.

Osterwalder and Pigneur separated the model into different elements where the "who" refers to the customers, their relationships and the channels used; the "how" relates to resources and capabilities, the value configuration and the partnership; and the "how much" deals with the financial aspects.

2.1.4. The use of Storytelling in a product development process

The value of storytelling goes beyond a business tool that is able to establish the communication between customers, clients and or stakeholders. The act of storytelling cannot be defined as a mere communication technique that is focused on sending and receiving messages between different actors.

The true benefit of storytelling is its active share throughout an entire product/service development process, by the intervenient that belongs to its creation. During an entire product development process, the professionals involved are constantly interacting and communicating by sharing knowledge and experience. The use of storytelling in a company focuses on the experience exchanged and shared, and it is what prevents a set of symptoms such as extended budgets, prolonged timelines and deviation on focus on real user needs.

Ideally, the activity of storytelling should be embraced by the whole product since a story exclusively works when, and only if, is shared and embodied by all the characters involved in the product development. Therefore, storytelling is a mindset that must be practiced on a daily basis. Sarah Doddy (2015) refers that the ability of implementing storytelling techniques such as storyboarding, product stories, and context based feedback reviews is the warranty for the increased value at the creation of the right product for right target.

A product is more than an idea and even more than a list of functionalities. A product is the object which provides an experience to the customer that increases or adds value to people's life through fulfilling a need or satisfying a desire. At this moment, the question that arises is who is the element responsible for identifying that value? After the executive or stakeholder identifies the initial idea, who in the organization is uncharged of analyze if a certain product actually delivers value to the final user? Probably it is not the product or project manager, the commercial or the marketer, the engineer or the designer; perhaps a new and innovate role is needed. Sarah Doddy (2015) called the potential new profession as the *product storyteller*.

The product storyteller

The main goal of a product storyteller is to provide the connection among all of episodes and with that promote the act of co-creation. A product storyteller should be positioned in the company to finish with the borders between the groups, facilitate the development of a single story, between groups, and ensure that every interaction a consumer has with a product or brand maps back to that story. Product storytellers should be at the intersection of product, marketing, and technology to help ensure that what's being created clearly maps back to a product story that identifies the plot, people, and perceived value to the consumer.

Sarah Doddy (2015) adds the conclusion that, before a technologist writes a line of code, or a marketer writes a line of copy, or a designer starts to design, the product storyteller has to establish the story the product is going to tell.

The researcher aims to prove the growing trend in the process of co-creation in the business reality and the effectiveness of storytelling to establish communication between different actors. The author wants to prove its benefits and advantages for all the elements who compose the process of co-creation and interact into a business.

2.2. Value Co-creation

Following the storytelling it will come the second main concept of the Dissertation, namely the concept of value co-creation, and the sub concepts connected to it. The author found relevant to explore each one of the concepts separately, as well as study the fundamental concepts related to each one of them. Lately, the researcher will develop an interaction of both concepts, storytelling and value co-creation, and analyze the benefit emerged from there.

2.2.1. Concept of Value Co-creation

Since Prahalad and Ramaswamy (2004) have published their primary definition regarding the meaning of value co-creation, a vast literature on the term has emerged. The authors highlighted the important need to co-create value not only with customers but also with stakeholders, such as suppliers, public organizations, business partners and competitors.

Prahalad and Ramaswamy (2004) purposed a new perspective on how to analyze the co-creation, meaning, defending a more collaborative integration, where companies and stakeholders share and co-create new and improved value. Prahalad and Ramaswamy (2004) defined value co-creation as *“the joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context”*.

A more recent and complete description of value co-creation was given by Leclercq (2016), with the author describing the value co-creation as *“a joint process during which value is reciprocally created for each actor (individuals, organizations, or networks). These actors engage in the process by interacting and exchanging their resources with one another. The interactions occur on an engagement interface where each actor share its own resources, integrates the resources provided by others, and potentially develops new resources through learning process.”*

2.2.2. Actors in the process of co-creation

The process of value co-creation involves a group of participants dynamically active during the entire the process. This value is born from the interaction between those different agents who are constantly collaborating and exchanging valuable information, inputs, knowledge and expertise.

Payne et al. (2007) affirmed the process of co-creating value by sharing and complementing resources, enable the actors or co-creators to actually develop new skills, have new experiences that, in the end enrich their engagement in future co-creation activities.

Developed by Leclercq, T., Hammedi, W., & Poncin, I. (2016), the figure below represents a value co-creation theoretical framework. The figure 2 presents the different components in the process of co-creation. According to the figure, the value co-creation process needs participants (actors) who interact. Those interactions are placed on the “engagement platform”, which can be online or offline, and the result of those interactions is the creation of “Value”. Regarding the consequences as outcomes from the co-creation process, Leclercq, T. (2016) called them: “passive consumers”; “company”, and “contributors” level. Each consequence depends on the actor who performs a given role.

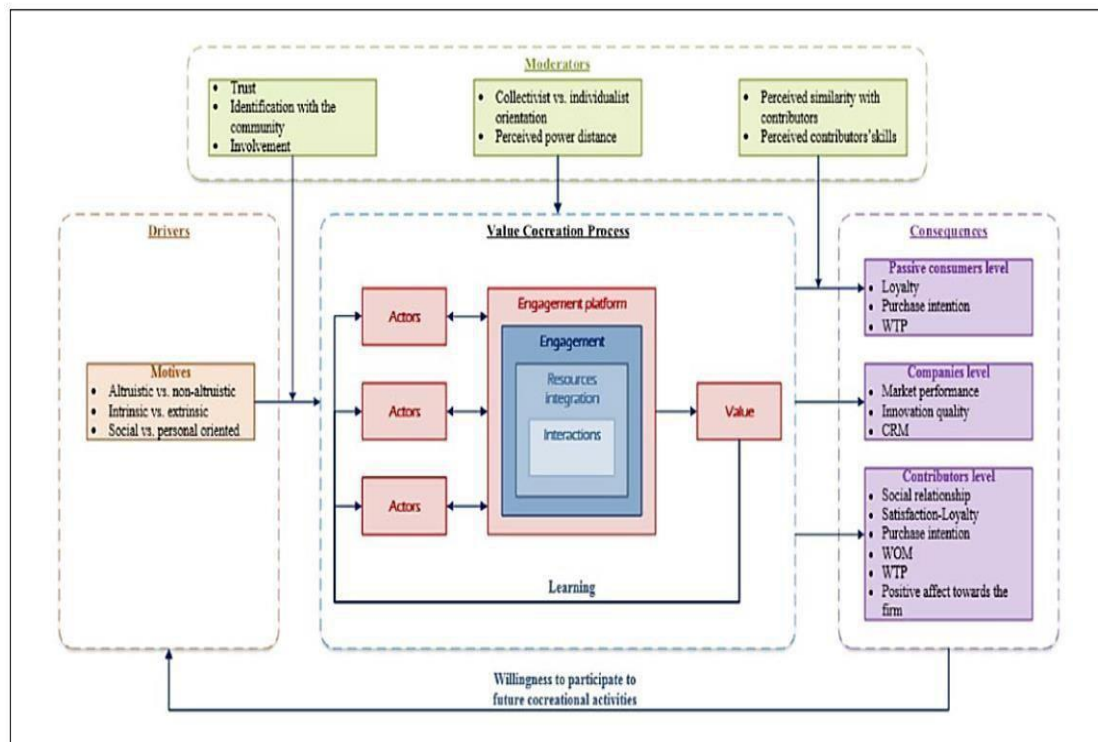


Figure 2 Value co-creation theoretical framework. Source: “Ten years of value cocreation: An integrative review.” Leclercq, T., Hammedi, W., & Poncin, I. (2016).

The different actors perform and interact accordingly with distinct motivations. The engagement platform is the place, either virtual or physical, where interactions and exchange of resources happen, logically, between the different actors.

Depending on the organization the motivations of the actors play distinct roles, and have different motivations to work. The next figure will display in detail the different actors, who perform accordingly with distinct motivations (altruistic or non-altruistic; extrinsic or intrinsic; social or personal orientation). Those actors interact with each other, exchanging, and offering value by one hand, integrating everything together, being in that way able to co-create even more value for actual and potential future actors, in the other hand.

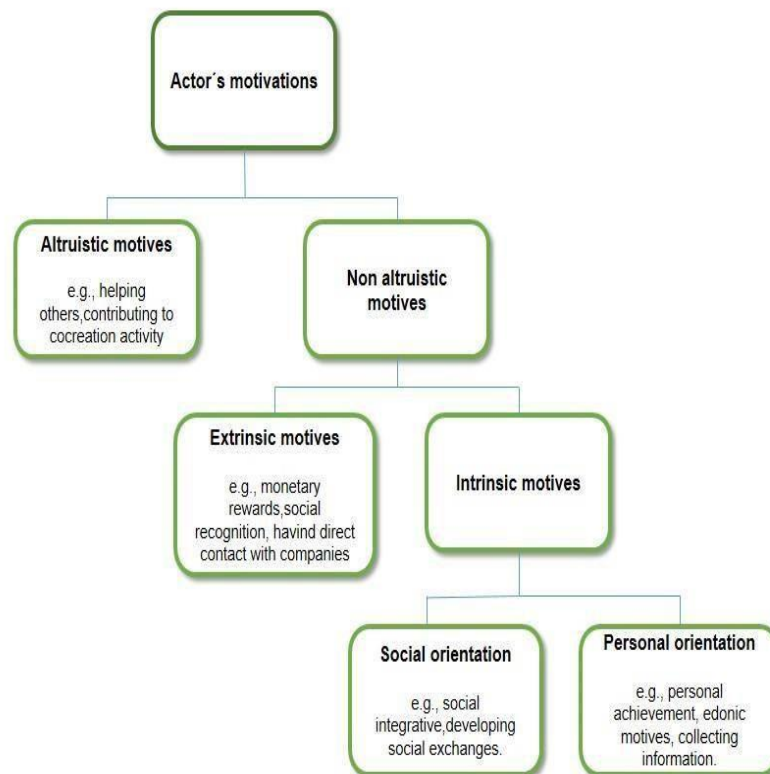


Figure 3 Actors Motivations for value co-creation process. Source: "Ten years of value cocreation: An integrative review." Leclercq, T., Hammedi, W., & Poncin, I. (2016).

Normann R., (2001); Prahalad & Ramaswamy (2004); Lusch and Vargo, (2006) highlighted the foundational role of customers in the creation and evaluation of value and argued that value unfolds in use.

In the same line of thought, the researcher came to the conclusion that, if the process of co-creation involves relationships between actors, and assuming the main actors are the customer and client, the author found relevant to introduce the concepts:

- Customer Journey;
- Customer Experience;
- Customer Engagement;

2.2.3. Customer journey

Nenonen, S., Rasila, H., Junnonen, J. M., & Kärnä, S. (2008) defined customer Journey as the technique designed to help organizations understand how customers use the multiple channels, react in the “touch points”, technologies (service or product) and how they perceive the organization at each touch point and how they would like the customer experience to be. The Customer Journey map receives information about all the movements pursued by a customer, and with that, companies can understand patterns, and apply the knowledge extracted by the model and optimize new features, products and services.

The customer journey is a visual customer plan where it contains detailed information about the steps and customer's interactions when he contact with a service or product. The main goal of this visual model is to understand what customers normally do while using a product or during a service process. If Companies are able to manage the customer path, they are proportionally able to increase the value and the mutual satisfaction for both of the active intervenes, the customer and an organization. This knowledge can be used to design an optimal experience that meets the expectations of major customer groups, achieves competitive advantage and supports attainment of desired customer experience objectives.

After the customer journey is identified and designed it comes the phase to analyze and assess the experience part, namely the *customer experience*.

2.2.4. Customer Experience

Katherine N. Lemon and Peter C. Verhoef have contributed to a stronger understanding about the concept of customer experience with their study in “*Understanding Customer Experience throughout the Customer Journey*”. Lemon and Vershoef (2016) stated that customer experience is defined as “*what people really desire are not products but satisfying experiences*”. Furthering this path, Lemon and Vershoef mentioned the contribution that Holbrook and Hirschman (1982); Thompson, Locander, and Pollio (1989) gave to the concept, providing a broader view of human behavior, especially recognizing the importance of the emotional aspects of decision making and experience.

Lemon and Verhoef (2016) have realized the ability of improving the customer experience constitutes an absolute priority for companies such as KPMG, Amazon and Google.

In the same study, other researchers have argued for a much broader view of the customer experience. Lemon and Verhoef stated that according with Schmitt, Brakus, and Zarantonello (2015) every service exchange leads to a customer experience, regardless of its nature and form. This expansive perspective considers customer experience holistic in nature, incorporating the customer's cognitive, emotional, sensory, social, and spiritual responses to all interactions with a firm.

Marketing practice has also embraced the study of customer experience. Pine and Gilmore (1998) conceptualized the idea of experiences as distinct from goods and services, noting that a consumer purchases an experience to “*spend time enjoying a series of memorable events that a company stages to engage him in an inherently personal way.*”

Recent business practice, Meyer and Schwager (2007) has also broadly defined the customer experience as “*encompassing every aspect of a company's offering—the quality of customer care, of course, but also advertising, packaging, product and service features, ease of use, and reliability. It is the internal and subjective response customers have to any direct or indirect contact with a company*”.

Direct and indirect Customer Experience

There are two distinct types of customer experience. The direct one is represented by the direct contact between a customer and a product or service. The indirect Customer Experience is the one that is not intended to happen, but still happens. The indirect customer experience can be also called by unexpected, because it is the one that occurs when the customer is not planning to it. Respectively, the first type of experience usually happens when the customer is buying or using a product or service in a given place. The second one, the called indirect customer experience, most often involves unplanned encounters, meaning when the customer is not expecting nothing to happen or to experience. Basically it is a surprise experience, like advertisement, e.g. the new background images that appears as a pop-up when doing a search on Google's homepage. In the end, the type of experience will be responsible for conducting or not the customer to an engagement scenario.

2.2.5. Customer Engagement

Recently, marketers dedicated themselves to investigate the key role that the customer engagement plays in the process of customer co-creating value. Lemon and Verhoef also dedicated themselves to explore the concept of customer engagement. Lemon and Verhoef stated that according to Kumar, Petersen, Leone (2010) as soon as a customer is engaged in a co-creation process, automatically and naturally generates transactional outcomes. Related to that, and in the same study, Godes and Mayzlin, (2004); Matos and Rossi, (2008); Chen and Xie, (2008) believe those transactions could be customer referrals, as well as non-transactional outcomes, such as word-of-mouth (WOM) or recommendation behaviors to others, such as friends for example.

Brodie et al. (2014) defined customer engagement (CE) as *“a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g., a brand) in focal service relationships. It occurs under a specific set of context-dependent conditions generating differing CE levels; and exists as a dynamic, iterative process within service relationships that co-create value. CE plays a central role in a nomological network governing service relationships in which other relational concepts (e.g., involvement, loyalty) are antecedents and/or consequences in iterative CE processes. It is multidimensional concept subject to a context- and/or stakeholder-specific expression of relevant cognitive, emotional and/or behavioral dimensions.”*

The customer is engaged in engagement platforms, meaning the location where the customer meet and relief the need. It could be, a brand, a simple idea, a product, service or a hybrid solution. Those platforms can be either virtual or physical, and have the same effect in the customer, both are able to engage and continuously feed the customer.

In order to provide a clear understanding about the concept of customer engagement, the author will introduce a table with distinct authors and respective definitions regarding customer engagement.

Table 2 Customer Engagement definitions. Source: "Beyond virtuality: From engagement platforms to engagement ecosystems", F.Breidbach, C., Brodie, R., & Hollebeek, L. (2014).

Author(s)	"Customer Engagement" definition	Key hallmark
Kumar et al. (2010, p. 297)	A customer's active interactions with a firm, with prospects and with other customers, whether they are transactional or non-transactional in nature.	Active interaction
Van Doorn et al. (2010, p. 254)	A customer behavioral manifestations that have a brand or firm focus, beyond purchase, resulting from motivational drivers.	Beyond transactions
Vivek (2009, p.7)	The intensity of an individual's participation and connection with the organization's offerings and activities initiated by either the customer or the organization.	Varying degrees of participation
Patterson et al. (2006, p.1)	The level of a customer's physical, cognitive and emotional presence in their relationship with a service organization.	Service focus
Brodie et al. (2011, p.259)	A psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g. a brand) in particular service relationships.	Interactive customer experience
Mollen and Wilson (2010, p. 919)	A cognitive and affective commitment to an active relationship with the brand, as personified by the website.	Cognitive and affective customer commitment
Bowden (2009, p.63)	A psychological process that models the underlying mechanisms by which customer loyalty forms for new customers of a service brand, as well as the mechanisms by which loyalty may be maintained for repeat purchase customers of a service brand	Psychological process generating customer loyalty

Nowadays, Social Networks such as Facebook or Instagram are real examples of what are processes of customer co-creation in the context of brand communities. In those cases, the brand meaning and the emotional character provided by these Social Networks are the key factor and the reason why there are billions of people engaged to those on-line platforms.

The customer pattern engagement may start through an on-line platform such as a website and ended up in a physical store, for example. From this perspective the customer can be engaged in the final experience, as well it is equality possible to happen in the other way around: from physical to virtually engagement EP'S (engagement platforms).

2.3. Gap in Literature Review

After exploring the state-of-the-art, the author found articles related to both concepts, storytelling and value co-creation, but it was found a gap in what concerns the interaction between those two concepts. After an in-depth study, the researcher understood that was crucial to complement the process of value co-creation with the use of storytelling. For that, a lot of research was made in this sense. Firstly to understand the different concepts available of storytelling, to further enable the selection of the most appropriated term to be involved in this area of study. The concept of storytelling selected to be interacting with the concept of value co-creation is the storytelling in business/corporate context.

In the Literature Review studied, the concepts mentioned above, the storytelling and the value co-creation, appeared independently without any interaction or collaboration.

After a deep analysis, the researcher found out the storytelling in business context brings strong benefits and advantages for the process of value co-creation, and moreover, that is co-responsible for the value co-creation itself.

3. Conceptual model for applying Storytelling in the process of value co-creation

According Ian Goulding (1983), a new product development (NPD) as emerged. Ian Goulding describes NPD as the innovation process defined as *“the technical, industrial and commercial steps that lead to the marketing of new manufactured product”*.

Related to the product development, Koen P.A., Greg M., Ajamian, Boyce S., Clamen A., Fisher E., (2002) mentioned the fuzzy front end (FFE) as *“the messy getting started period of new product engineering development processes. It is in the front end where the organization formulates a concept of the product to be developed and decides whether or not to invest resources in the further development of an idea. It is the phase between first consideration of an opportunity and when it is judged ready to enter the structured development process”*.

Based on that, and in order to introduce a context, this chapter will be dedicated to the development of a model able to illustrate a *product development process*, with the four phases that constitutes its nature. Each one of the phases will be displayed and described in the model (figure 4).

The model evidences the four distinct phases of a product development process, where the value co-creation happens distinctly in each one of the phases, respectively: the “concept development”, the “development” phase, the moment of “launch” and the “Exploration” phase. The researcher selected the “Exploration” phase to be focus on for the development of what comes next – the development of a Conceptual model.

The reason of this choice lies on the fact the “Exploration” phase is the time that a product/service is already developed and launched in the market, which means the customer/user is already able to interact with a given solution.

Secondly, and still being focus on the “Exploration” phase the researcher will develop the Conceptual Model itself.

The purpose of this chapter is to analyze, through the Conceptual Model the interactions between the actors who compose the model, and understand how those actors co-create value by using the storytelling technique.

The goal of the conceptual model is to analyze how the use of Storytelling contributes for the process of value co-creation in innovative solutions. In order to clearly explain the conceptual model, it as was defined a methodology that points out the main characters (actors) and items needed to promote the value of the co-creation by using the technique of storytelling.

The figure bellow displays the first model with the four different phases of a product development process, respectively, “concept development”, “development”, “launch”, and “exploration”.

The “exploration phase” is highlighted with red color due to the importance this phase has for the purpose of the study and for the development of the Conceptual Model that will appear in the next pages.

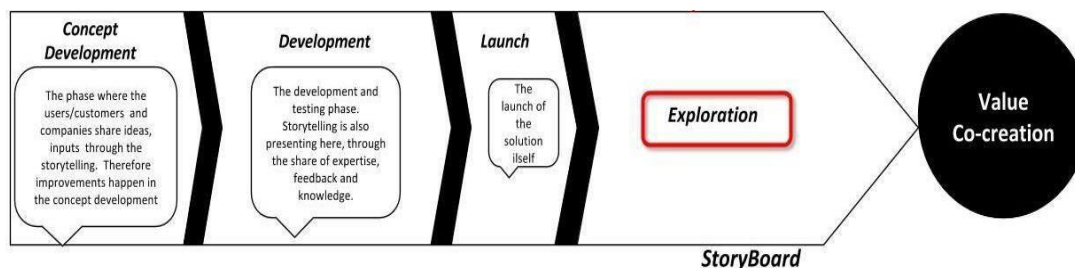


Figure 4 Product development process. Source: developed by the author.

After consulting the figure 4, and having in mind the context of a product development process, the chapter will continue its analysis on its last phase – “Exploration”, and it will introduce a methodology with the actors and items needed for the later development of the Conceptual Model.

In order to develop the methodology mentioned, the author identified a sort of steps, based on the concepts studied in the Literature Review. The purpose is to provide the reader a sort of “manual instructions”, with the proper explanations and definitions of the items that will be further represented in the Conceptual Model.

Considering the previous chapter, the literature review itself, presented distinct concepts and definitions provided by different authors and books. For the methodology’s development, the author selected some of them and created relationships of interaction, integration and collaboration between them.

The methodology will follow some of the concepts previously addressed in the Literature Review and conjugates with others that were considered by the author, crucial for the interpretation of the model.

The concepts selected to the development of the methodology will be therefore displayed in the Conceptual Model (figure number 6, page 29).

Based on that, in order to start the methodology development, the author will start with the ones who are dynamically involved in the process of value co-creation - the actors.

As Leclercq, T., Hammedi, W., & Poncin, I. (2016) stated, there are different types of actors, they could be individuals or entities, and has read it before, the actors interact according to different motivations. Related to that, and, depending on the role that each actor performs, the inputs, consequences and final results of the value co-creation are, naturally different.

The different actors perform several action moments during a given timeline. The Conceptual Model will exemplify the action moments, and further will give real examples on a daily routine. Related to that, the set of these action moments constitutes a concept already approached in the literature review: the Customer Journey. Nenonen, S., Rasila, H., Junnonen, J. M., & Kärnä, S. (2008) defined customer Journey as the technique designed to help organizations understand how customers use the multiple channels, react in the “touch points”, technologies (service or product) and how they perceive the organization at each touch point and how they would like the customer experience to be. The Customer Journey map receives information about all the movements pursued by a customer, and with that, companies can understand patterns, and apply the knowledge extracted by the model and optimize new features, products and services.

The researcher included in the methodology and therefore in the conceptual model, the interfaces. Interfaces are technical devices responsible for allowing the interaction between an actor with a technology (a sensor, a smartphone, a smart watch e.g.).

Neonen, S., Rasila, H., Junnonen, J. M., & Kärnä, S. (2008) called “touch points” to the moment when the customer is in contact with a product or service. Following the same perspective, the researcher called “points of interaction” to the same definition, assigning the same meaning. Based on that, a point of interaction happens anytime an actor, meets/touches an interface.

All of the terms mentioned, the actors, the action moments, the customer journey, the timeline, the interfaces, and the points of interaction will be presented in what the researcher called “Storyboard”. The Storyboard will be highlighted regarding the visual positioning in the conceptual model, since it is one of the main concepts explored in the Thesis.

The Storyboard is the set of described episodes that each actor performs, and in the end constitutes a story. Finally, the storyboard lived, conducted and experienced by an actor, contributes for the customer experience.

According to Meyer and Schwager (2007), customer experience was defined as *“encompassing every aspect of a company’s offering—the quality of customer care, but also advertising, packaging, product and service features, ease of use, and reliability. It is the internal and subjective response customers have to any direct or indirect contact with a company”*.

3.1. Methodology

Items and characters that will be part of the Conceptual Model



Figure 5 General methodology to be implemented in the Conceptual Model. Source: developed by the author.

The methodology presented will be followed by a Conceptual Model, presented in figure 6 (next page). It is its main goal and intention, the clarification and explanation of the entire flow and interaction between the “items” and “characters” exposed on the methodology, along the process of value co-creation.

3.2. Conceptual Model

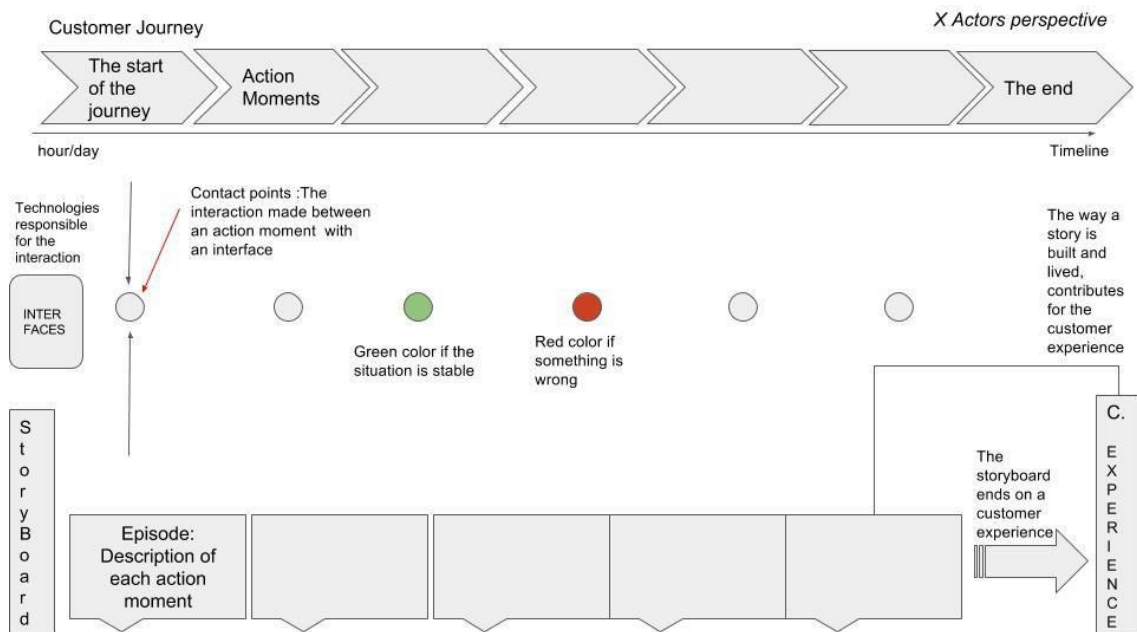


Figure 6 Template format of a Conceptual Model. Source: developed by the author.

Regarding the model presented, it is important to understand that there are as many templates as there are actors involved. The actors can be, e.g., the user/customer, the client, the company responsible for the development of the interfaces, the BackOffice system, etc.

The conceptual Model developed aims to extract future improvements for the institutions and organizations who will be interested on apply this type of co-creation model in the development of innovation solutions, during the exploration phase.

4. Case Study Development

The purpose of this Master's Dissertation is to analyze how the use of storytelling contributes to the process of value co-creation in innovative solutions.

This study will address two case studies developed in FYI Digital Innovation, the company where the researcher performed the role of Product Manager. FYI Digital Innovation is a company dedicated to the concept of 'Internet of Things' (IoT). Its main activities are concentrated on development and integration of web, mobile and interactive interfaces always with the objective of deliver and receive concrete information, with little or any perceived user interaction. In FYI Digital Innovation, there are two innovative solutions that were considered by the researcher as potential adopters of the concepts studied. Concretely, two monitoring systems, one in the health area and the other one in the culture area.

Both of the systems are potential to provide an interested view about the interaction between the users and the interfaces and how both intervenient can, in the future, co-create value together.

Methodology

Based on a case study approach, two solutions related to monitoring systems, were object of study. The goal is to analyze and describe the solutions selected for the study and develop two case studies based on that. The solutions selected will be applied on the conceptual model, which was developed in the previous chapter (III).

Finally, when the Conceptual model would have all the data uploaded on it, is the moment when it can be extracted information's and outcomes from the interactions and collaborations between the intervenes. Those interactions and relationships were performed between the actors, interfaces, points of interaction, story board, customer journey and customer experience, inside the model.

For each monitoring solution, it will be applied a Conceptual Model, with the appropriated adaptations, regarding each monitoring system, one in health area and the other in culture area. The choice of the concepts and the positioning of them in the Model, were carefully thought analyzed, and the Researcher believes the model is complete with all information needed to ensure the value of co-creation.

Case studies Structure

The Case Studies will be present by order, being the first one related to monitoring systems in health area. The second case study will be related to another monitoring system, with a difference in the area, being this one focus on the culture area. Both case studies will pursue the same structure and will perform the same type of analysis.

Table 3 Structure of the two case studies. Source:
Developed by the author.

Case studies of Health and Culture monitoring systems

Opportunity identification
Value proposition for the solution
Customer segment
Client segment
Customer relationships
Description of the solution
Implementation of the Methodology
Conceptual Model application
Inputs from co-creation

4.1. Case Study 1: The monitoring system in Health area

Opportunity Identification

According to a deep analysis conducted by a team of Doctors, Nurses, and medical community, together with team members from FYI Digital Innovation, a need was found. Concretely, a need that correspond to a lack of capacity or autonomy. This pain can be felt by anyone who needs supervision and extra care. The solution can be used in future by everyone, from elderly people to someone who were either hospitalized either suffering from some disease, or even, those who are temporarily incapacitated in what concerns to perform the daily tasks.

Value Proposition of the Solution

For everyone who needs supervision, the system in health department is the service responsible for monitoring people who needs extra health or vigilance care and thereby increases levels of safety and autonomy in their daily-routines. Is the mechanism that transmits the people's behavior and patterns and alerts every time there is a pattern break.

Customer Segment

Everyone who needs supervision and extra health cares, could them be someone who is recovering from a surgery or someone who is doing physiotherapy. From young to elderly people as well as people with disability.

Client Segment

Every Hospital or health center that decides to install the innovative system, and consequently, its patients could have the option to buy the monitoring system.

Customer Relationship

The relationship established between the customer and the value proposition can happen through online and physical promotion. The only promotion could be the social networks and opinion leaders, emailing campaign, the potential website where the product will be announced and advertised. The physical promotion is made with awareness events, in hospitals and health centers, through the National System of Health, through customer support by the time the product will be in the market, and through printing media such as journal and magazines health related.

4.1.1. Description of the solution - in house Tele assistance 2.0

The monitoring system in Health is being built at the precisely moment where the thesis writing is taking place. The name of the solution as well as the client associated with the solution are not revealed due to novelty that presents and because it has not yet entered into the market.

How it works in practice:



Figure 7 Example of a house with interfaces. Source: FYI Digital Innovation

The system is prepared to be installed inside the houses, according and adapted to the equipment's that people already have. The equipment's needed for the installation of the solution are a television, a smartphone or a computer. These are the interfaces responsible for the interaction that will take place inside their homes.

- **Television with Skype connection for:**

- Connection with the personal assistant from the hospital;
- Connection with the Doctor and Nurse from the hospital;
- Connection with relatives.

- **MNX**

- The Box that is responsible for all the interaction between the interfaces installed with server/database from the Hospital;
- Interaction and TV control.

- **Equipment integrated in the pillow for:**

- Monitoring sleep for elderly people and sending alerts when some data leaves the standard (wireless).

- **Monitoring and weight measurements** such as fat mass, muscle mass, bone mass and water (wireless).

- **In-house geo-referencing** and alarm detection when the routine goes out of the pattern.

4.1.2. Description of the interfaces:

1. IPAD/Tablet with software adapted and friendly user for:

- Make connections by Skype calls on TV, with image bottoms of the people to contact;
- Management of TV channels;
- Sending reminders and alarms for the person-in-care and the Hospital entity for taking the medication, the meals and water.
- Panic button to press in case of panic/emergence;
- Incorporated with a second software for the caretaker's use, for the register of activities/services performed and clinical data from the persons-in-care.

2. Smart watch

- Monitoring and alarm sending of the heartbeat;
- Alarmist of falls (accelerometer);
- Geo-referencing;
- Alarm button for tele-assistance;

Inside the house these equipment's assume the communication via wireless with the interaction box of the equipment's (interfaces).

4.1.3. Information Flow

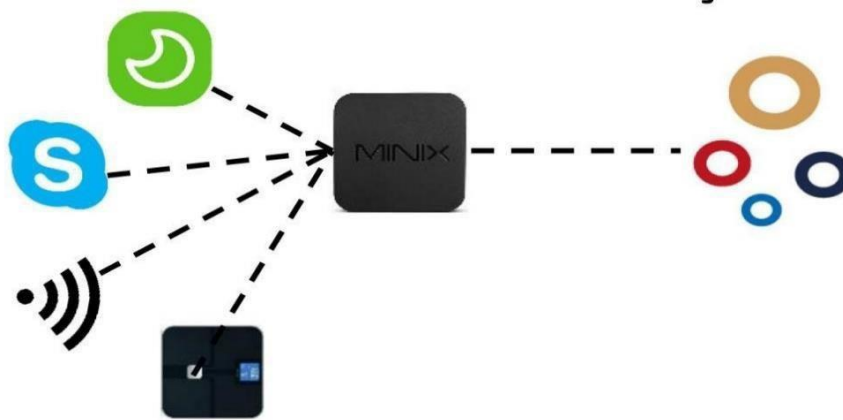


Figure 8 Information Flow. Source: FYI Digital Innovation.

Each person-in-care will have a file of his own, where it will be registered the historic of the monitoring collected by the equipment, being accessible to the Personal Assistant, Doctor and Nurse of the hospital Entity. In this same file will be incorporated the clinical file of the user/personal-in-care.

The system is composed by a set of technologies and possible installations that aim to monitor people, through the extra support provided to them in terms of care and supervision. The different technologies and interfaces work together in order to help and guarantee security for the persons-in-care that need healthy cares.

Those persons, while using the technologies, are constantly transmitting data, meaning, information about their behavior, their patterns, their well-being such as heart rate, blood pressure and so on. These same information, sent by the users, is carefully accompanied and analyzed in a central control of the Hospital entity, in order to make sure that those people are correctly being supervision and monitored.

The value of these services, provided through different interfaces such as a smart watch, a tablet, a television that offers tele-assistance, the sensors installed in the distinct house divisions, results from the interaction between people together with the use of technology.

According with the information produced and sent by the users, the central control is able to answer and provide the right service regarding their needs, situation and circumstances. The health status of the person-in-care can be stable for a while and suddenly anything can happen. The crucial point happens at this exact point, when changes in health status happen. Eventually, any change is possible to happen, since a potential recovery to a possible aggravation of the health status.

The important perspective here is that with this system implemented, the control center is constantly updated about users/patients status in real time dimensions, which guarantees an immediate response by the Hospital team members. The Central Control has access to the city map where operates, and the map contains information regarding the houses monitored.

The different colors are related to the different situations that may occur inside, being that the green color means that a certain patient is under control, and the red could mean a danger alert caused by a possible rupture of standard.

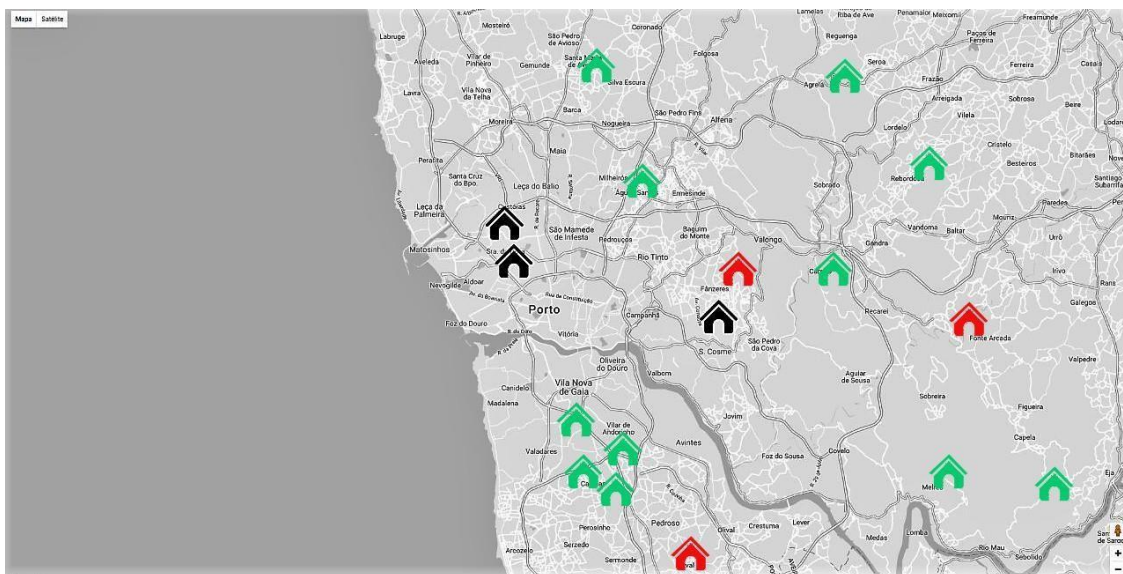


Figure 9 Example of a map view in Central Control, with the colors representing the status of each house monitored. Source: FYI Digital Innovation.

Security Protocol

There is a security protocol to be performed by Health entity in every monitored situation. Logically, the priority of execution is based on the different scenarios, and it always depends on the emergency levels of each particular situation. If something goes out of the pattern, there is an alert that is immediately sent to the control center, which is received and analyzed by Health professionals, responsible for deciding how to act.

If the alert verified is considered, by them, not serious or not from an urgent nature, the protocol demands the health professionals to initially make a call for the neighbors. In the case it was confirmed that it was nothing serious, and that everything is stable, the situation is considered resolved, meaning, under control, under supervision/vigilance. On the other hand, in the case of more serious situations, it is sent a Doctor or a Nurse to carefully check the patient status, and, when necessary, the patient could be sent to the Hospital.

House Managers

Another service to be potential collaborator with the monitoring system installed inside the houses, is the role the researcher called by the *House Managers*. The role of “House Managers” was thought to be applied when people are sick and/or recovering from some incident which does not allow them to perform their daily tasks. The role of a House Manager is to regularly visit the person-in-care to see if everything is going well. It is also his responsibility to carry out with any daily task that the person is unable to do, namely, payment of expenses, purchase of medicines, walk with pets, etc. The House Manager can work for temporary situations or for definitive situations, depending on the customer need.

The use of storytelling by House Managers

On top of these activities, the main goal of a House Manager is to collect feedback from the customer (patient), analyze it and improve solutions with the complementary information studied by him together with the customer’s experience.

4.1.4. Implementation of the Methodology developed in chapter nº III - Conceptual model for applying Storytelling in the process of value co-creation

The monitoring system in Health area

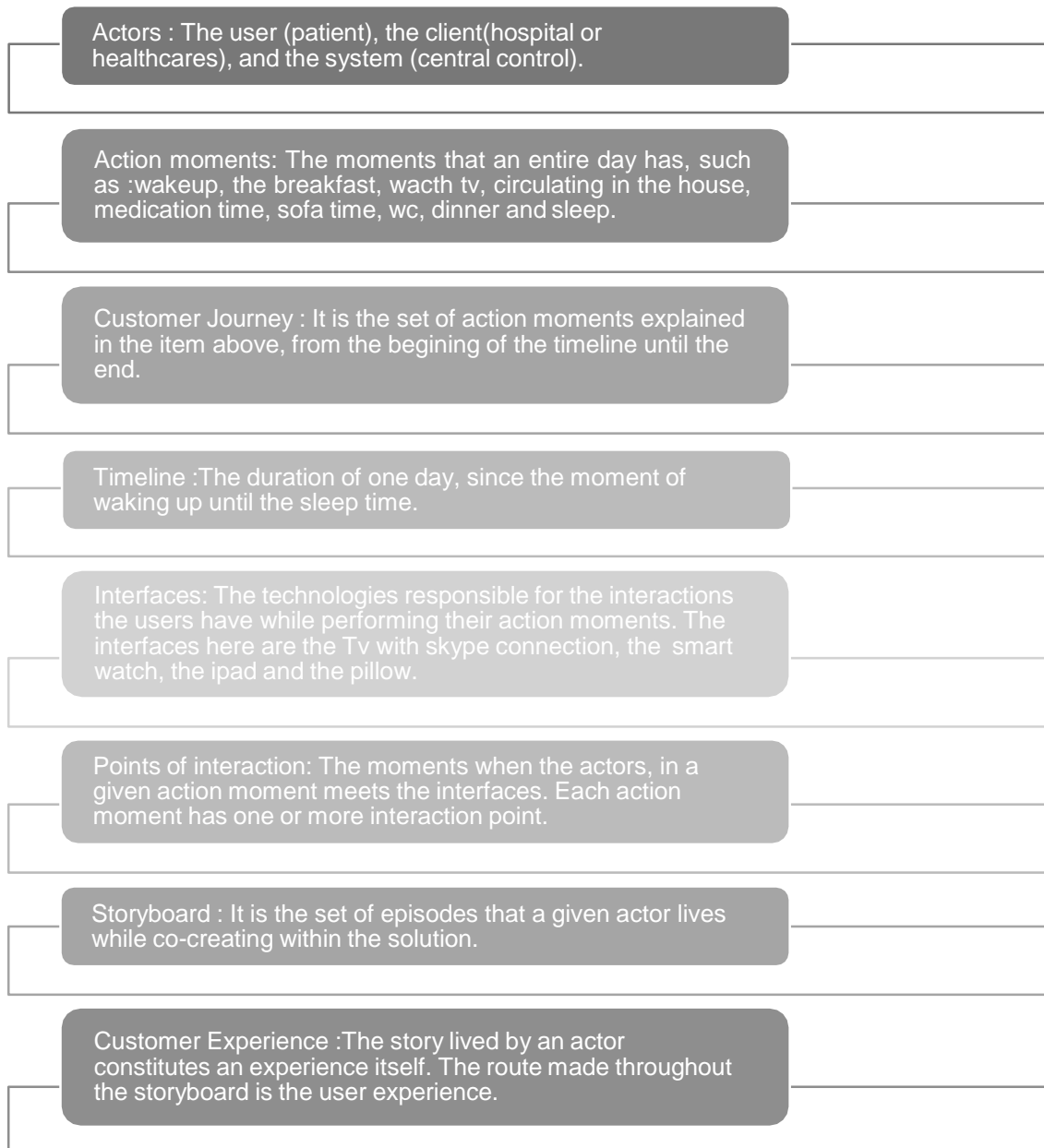


Figure 10 Methodology applied in the case study number one, health area. Source: developed by the author.

4.1.5. Conceptual Model application - User/Patient Perspective

The Conceptual Model adapted for the User's perspective intends to show the customer journey (the superior arrow graphic) made throughout an entire day, and evidence how the action moments (that forms the Customer Journey), actually result in episodes which are part of the storytelling (in the storyboard area).

Each action moment, e.g., the action of waking up, results in a descriptive episode that complements the storytelling, e.g. *"The patient is stable at the moment he wakes up. The vital signs and heartbeat are within the norm"*. The description of a user/patient health status results from the interaction that the user has with the different interfaces installed inside the house (TV with Skype, smart watch, iPad, and pillow). These interaction is, what the researcher called of "point of interaction", which is, every touch moment that a given user has when meeting a given interface. The result of that contact allows the description of the episode.

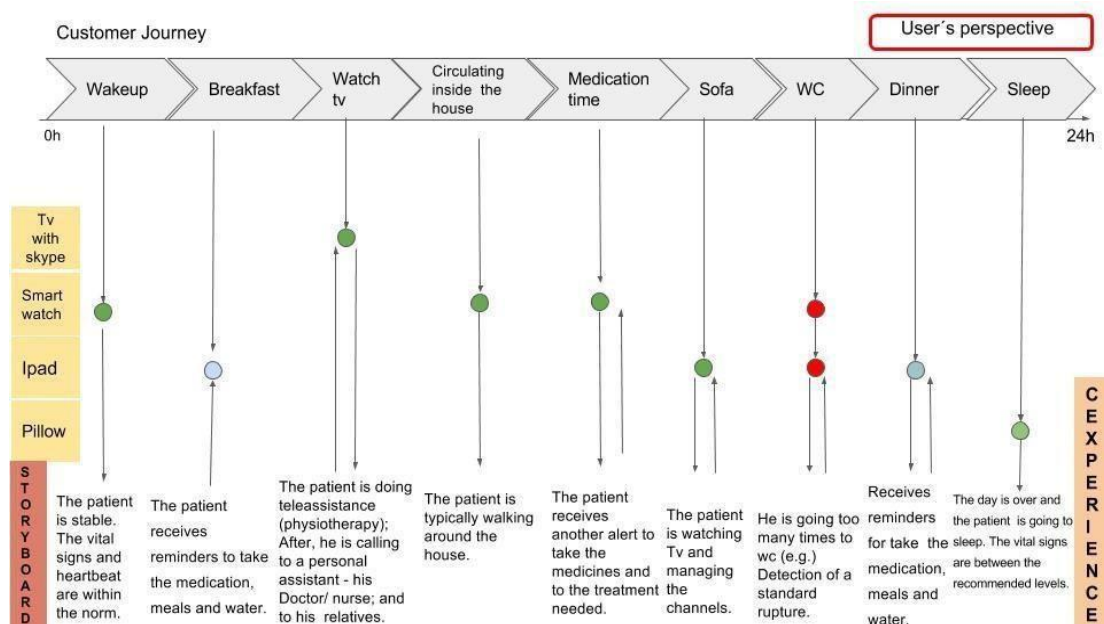


Figure 11 Conceptual Model applied to the case study number one, through user's perspective. Source: developed by the author.

In the end, the construction of the storytelling (the set of episodes) that a user lived, in this case, during a day, contributes for the Customer Experience (as it can be observed in the lower part of the model). Each "point of interaction" with the interfaces, and every action moments will contribute for the customer experience.

With time, each user will have its own pattern, its own habits and costumes, and those social and health aspects will be followed by the entities responsible for the monitoring, the Control Central of a given Hospital.

Regarding that, the security measures will have user's patterns in consideration, when acting or reacting.

The model presented works according to the following logic:

- ☐ Everytime a pattern break is verified, the security protocol is activate and depending on the situation certain measures are taken;
- ☐ When it is within the standard, the normal action follows.

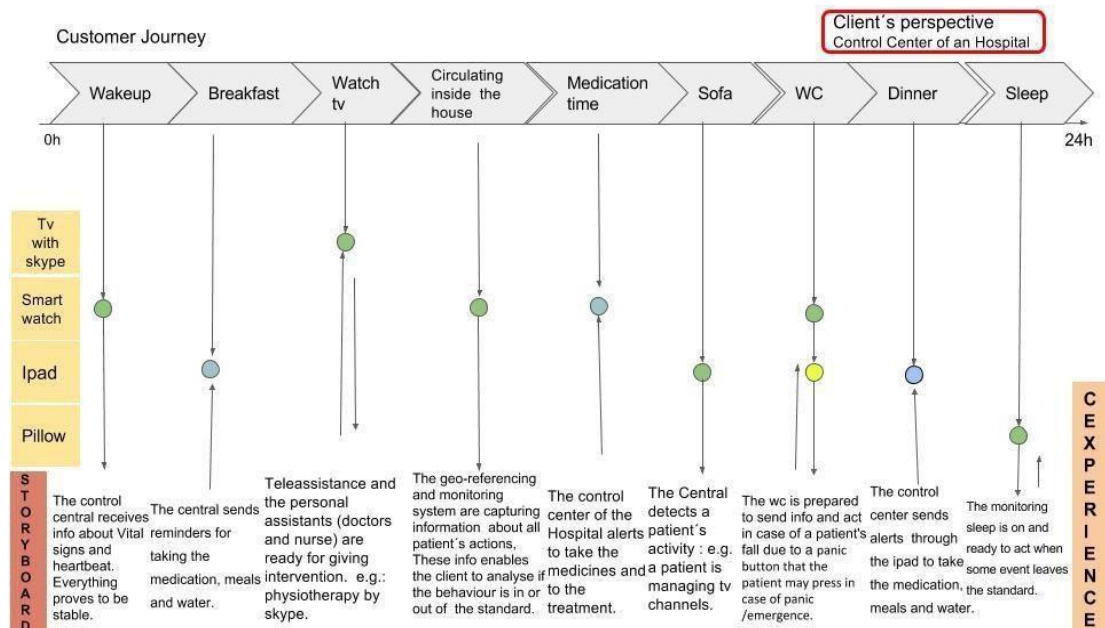
The value co-creation

Along a customer journey, the user is always communicating with the interfaces installed, sometimes with user interaction and conscience and another, with any perceived user interaction. What matters in this analysis is, in both cases, the user interaction with conscience or the user interaction without perception, is always communicating and sending information. These same information is properly received and analysed by the Central Control. The user is constantly co-creating with the service installed, even in situations that he may not realize.

The point to highlight here is Central Control is not able to react and monitoring people if those same people are not transmitting information about themselves. These two actors are co-creating together, for a monitoring and therefore, a safer and more secure situation.

4.1.6. Conceptual Model application - Client's Perspective

Regarding the Client perspective, there is a Model adapted to its role. The model follows the same structure as the previous one, with the customer journey still belonging to the patient that is being monitored, and with the same interfaces and points of interaction. The main difference here, first of all, the actor, which in this case is the "Client", and due to that "Storyboard" related will be also distinct. The storyboard by Client's perspective assumes another logic, being concentrated on Central Control as the main actor and responsible for the episodes. The Client is responsible for receiving information, e.g. "The control center receives information about vital signs and heartbeat. Everything proves to be stable", and, for sending alerts such as "The central sends reminders for taking the medication, meals and water" to guarantee a proper monitoring service. (The reader can find this information in the first and second episode. The geo-referencing and monitoring system allows the Client to possess information about all the user's actions, and these information enables this actor to analyze if the behavior is in or out of the standard. The crucial point here is the Client is responsible for acting at any moment, depending on the user's need and situation. Supposing a given user needs tele-assistance. He is seated in the sofa, just having to press a button and wait for some professional to do physiotherapy for example. On the Client side, he has to be ready to perform immediately when the user is in need. The Client is the actor with more responsibility, because is the one who has to be prepared to immediately react in any kind of situation as well for routine procedures.



The model presented works according to the same logic (previous model):

Figure 12 Conceptual Model applied on case study number 1, through Client's perspective. Source: developed by the author.

- Every time a pattern break is verified, the security protocol is activate and depending on the situation certain measures are taken;
- When it is within the standard, the normal action follows.

In order to conclude the model's analysis the researcher highlights that none of the parties could work individually, due to the fact that this is a sharing information process - namely, a co-creation process, one party is dependent from the integration of the other. The technology does not work alone without the information provided by the customers, neither the person-in-care is monitored without the technology.

4.1.7. Inputs from co-creation

The Hospitals and Health Centers (Client)

The value of co-creation process in health department is verified and experienced by each participating actor that encourages and belongs to the creation of the value co-creation itself. Regarding the Health sector, and the monitoring system implemented on top of it, the actors are well defined.

On the one hand, the co-creation process needs the users/customers, which in this case are the patients and everyone who needs supervision or extra care, and on the other hand are the Hospitals and the Health Centers (clients). Both actors receive benefits regarding their participation and inputs sent and received during the monitored time, meaning, the time of interaction with the interfaces.

The purpose of the implementation of the strategy of the process of value co-creation itself is to provide a better experience and a better service for the actors involved, respectively, the customer/user (patient or/and everyone who needs supervision and extra care) and the client (Hospitals and Health Cares).

Starting with the Client perspective, the actor will:

- Benefit from the continuous monitoring of their patients and users by having their healthy status always updated. The Health entities are able to predict what to do next;
- Guarantee a better service in the sense that can react almost instantaneously and avoid incidents of greater severity;
- Conquer their users by increasing on them levels of security, safety and autonomy;
- Be able to prevent the worse scenarios by super visioning and alerting;
- Be different in the market by offering innovative and exclusive services;
- Have the chance to constantly improve and grow in other innovative services.

Concerning the users, concretely, the patients and the people in general who need supervision, will:

- Be safer, with more security inside their houses, which increases levels of autonomy in their daily routines;
- Have higher chances of a faster, more comfortable and better recovery;
- Be able to ask for help at any time by pressing the “emergency/panic bottom available in The interfaces;
- Have a fast rescue;
- Have the option to do physiotherapy from home, .e.g. in the sofa;
- Have assistance through the support of House Managers who are responsible for performing activities during the recovery time the patients are not able to do (e.g. go to court, buy medicines in the pharmacy, by food in the supermarket etc.),
- Enables the users to save money in the sense they are controlling their health condition so they can prevent worsening health condition and therefore a future internment.

The focus on the monitoring system from the user's perspective is to provide a capable system generated through the geo-referencing itself, the television with Skype connection for a personal assistant (doctor or a nurse), the option of alarmist of falls (accelerometer) and the alarm bottom for tele-assistance.

These mechanisms optimize the reaction time on the both sides, the users and the team health assistance.

4.2. Case number 2: Monitoring System in Culture area

Opportunity Identification

A distinct monitoring system is the audio guide already developed by FYI Digital Innovation that acts in cultural spaces. It is quite common to see audio guides available in the museums. These devices, when pressed by the user, typically display the content of the multiple art pieces and monuments, combined with audio explanations and history context. In the current market, there are audio guides that are able to capture human presence while travelling a given exhibition. This means, the museums are endowed by a technology system, typically formed by beacon sensors that recognize and identify people's movement.

The result of the human presence information perceived by the sensors, is the display of contents in real-time dimensions. At the precisely moment that, someone crosses given point in a museum with this type of technology, the content will simply appear.

The content appears and disappears accordingly with the customer journey along the museum. The logic of a system with this characteristics is to provide innovation in a new experience to the customer and interaction with its behavior during a visit.

A more interested and complete service experience could be a system that is able to analyze the customer behavior and its patterns and with that, the potential change of adding value during a co-creation process, for both actors: the customer and the client. The new experience could be described as an interactive guide that enhances the user experience during a visit. The idea is to install an extra programming system, installed inside the app already used by the customer. This system will registers the duration of the visit, the duration of stops, as well as count the amount of times each visitor passed by a place. The information captured by the sensors will posteriorly transmitted and analyzed in another program similar to Google analytics, and therefore the information will be available in BackOffice. The BackOffice will be able to provide multiple metrics such as time duration of a visit, number of stops, detection of most visited areas (favorite places), returning points etc. The value of this novelty is for both actors' participants the user/customer (visitant) and the Client.

Value proposition of the Solution

For all the institutions which intend to get detailed information about their customers, the innovative audio guides are the solution that reads their behavior and patterns and therefore improves their customer experience in the next visit.

Customer Segment

Everyone who is potential interested in visiting museums and cultural environments.

Client Segment

Every museum and cultural space which intends to provide the best experience possible for the right type of visitors. Every entity who wants to adapt its exhibition and its order of display, regarding the type of visitors and their habits. Every institution who plans to increase the number of visitors by providing a better service by each time that is visited again.

Customer Relationship

The customer relationship in cultural spaces starts with the invitation to download a mobile application from the museum itself in the customer's smartphones. As soon as a visitor enters a given museum (e.g.) is invited to download heap which allows him to have more information about the place, its vision and goals, as well as information about its exhibitions, calendar, prices and its contents.

This first contact enhances and fosters loyalty between the entity and the customer who is firstly visiting it. The interaction between the mobile phone, through the museum app, with the beacon sensors installed inside the museum will allow the beginning of customer's storytelling. The story starts at the museum entrance, and will flow until the exit's door. The route travelled by a customer, filled by every stops and respective durations as well as returning points will be registered and the museum will own this information. The most visited areas, the definition of favorite ones will be detected and an adaptation of a given visit will happen.

Another attractive strategy for establishing and conquer new visitors could be the online advertisement through social networks as well as the official museum website.

Regarding physical relationships, the promotion of a free entrance, or a happy hour, in order to give the opportunity for the ones who never heard about the space or cannot afford the price, during a limited number of days, could be another viable option of creation new customer relationships.

4.2.1. Description of the solution – Innovative audio guides

The innovative audio guides work through the customer's own smartphones, from the moment the visitors download the Museum's mobile application. The process of downloading the Museum's mobile application is exactly the same as a common app download. The novelty of this solution is the "secret" function that has inside it. The smartphone with the app downloaded constitutes the audio guide itself that will interact with another system installed in the Museum.

Along the Museum, the areas inside as well as the external ones such as gardens and terraces, have beacon sensors distributed and covering the entire Museum's area. The communication's interaction starts here at this precisely point, when the visitors are walking by the Museum with their mobile phones and their presence is detected by the sensors.

In every location where a customer is, different information's starts to display, and depending on each point, meaning, whether is a monument, a painting, a sculpture or even a common area, the content changes and adapts regarding customer journey and the art piece. The communication system is made between the mobile applications (that constitutes the audio guides) within the beacons installed along the museum, via Bluetooth.

This integrated system allows the Museum's workers to capture and study the visitor's movements, behavior and habits and therefore take conclusions related to the information extracted, at various levels. With the statistic provided by the sensors, the Museum can learn which areas are more visited, the average time spent during a visit, the favorite pieces, meaning the most appreciated ones.

It could be a concrete picture, a sculpture or a painting. Additionally it is also possible to analyze the most frequent routes, to understand the attractiveness or lack of it, to further adapt the order of exhibition to capture more visitors, for instance.

Once more, the visitors are working together, this time, with the entities of the Museum, to commonly improve their visitor's experience on one hand and on the other hand, the success of the Museum itself. While making a visit, the visitors are communicating and informing the Museum about their habits, preferences, as well as what has been less appreciated by them. These information enables the museum to improve the levels of attractiveness, to reorganize the order of display of a specific exhibition or to decide which artists bring them more visitors.

The monitoring solution previously presented, represents a competitive advantage in the market and high levels of success in terms of brand, worth-of-mouth, and in terms of profit, regarding the Museum's perspective. The innovative system increases the probability of predict a visitor's preference route, being able to provide the "dream visitor" by reorganizing the trajectory accordingly to a certain profile.

The Heat Map detection

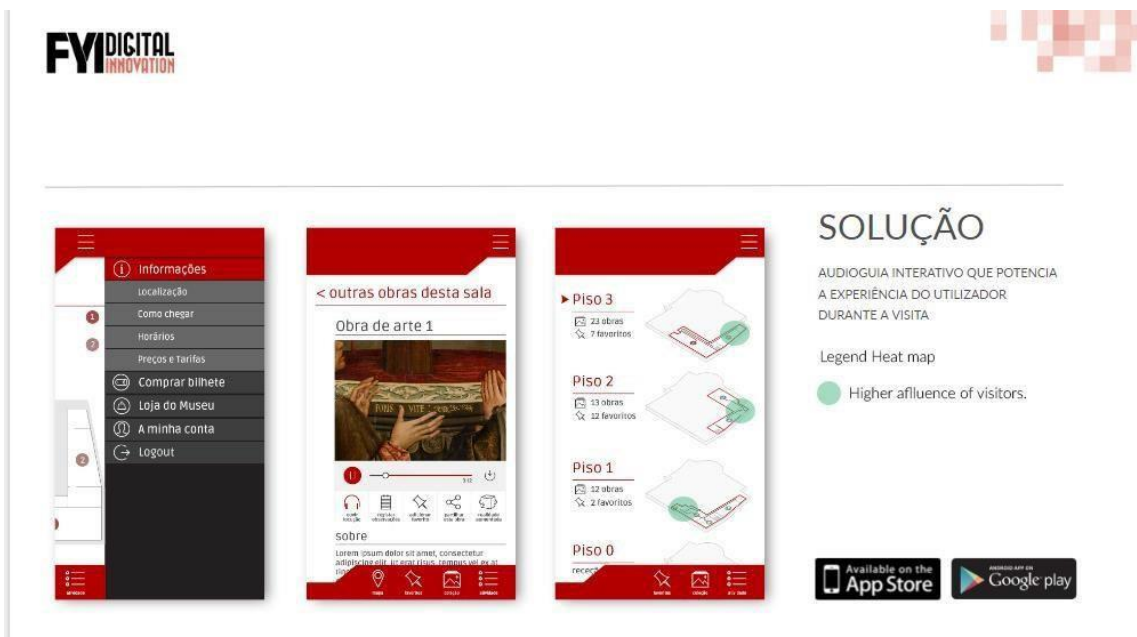


Figure 13 Three screens of the Museum's mobile application. Source: FYI Digital Innovation.

The Heat Map detects the areas with more affluence and with that, calculates the privilege areas, secondary areas, and, if applicable, the most economic ones.

In the image bellow, the Heat Map presents different areas of affluence regarding the different floors (piso 1, 2 and 3).

With this innovative audio guides, the Museum knows in an exhibition what to put in a first place, and what to put in the last stage. The next visit will be empowered by the information collected in the previous one, due to the visitor's transmission of a complete storytelling, with beginning, middle and the end.

4.2.2. Implementation of the Methodology developed in chapter nº III - Conceptual model for applying Storytelling in the process of value co-creation

Monitoring System in Culture area

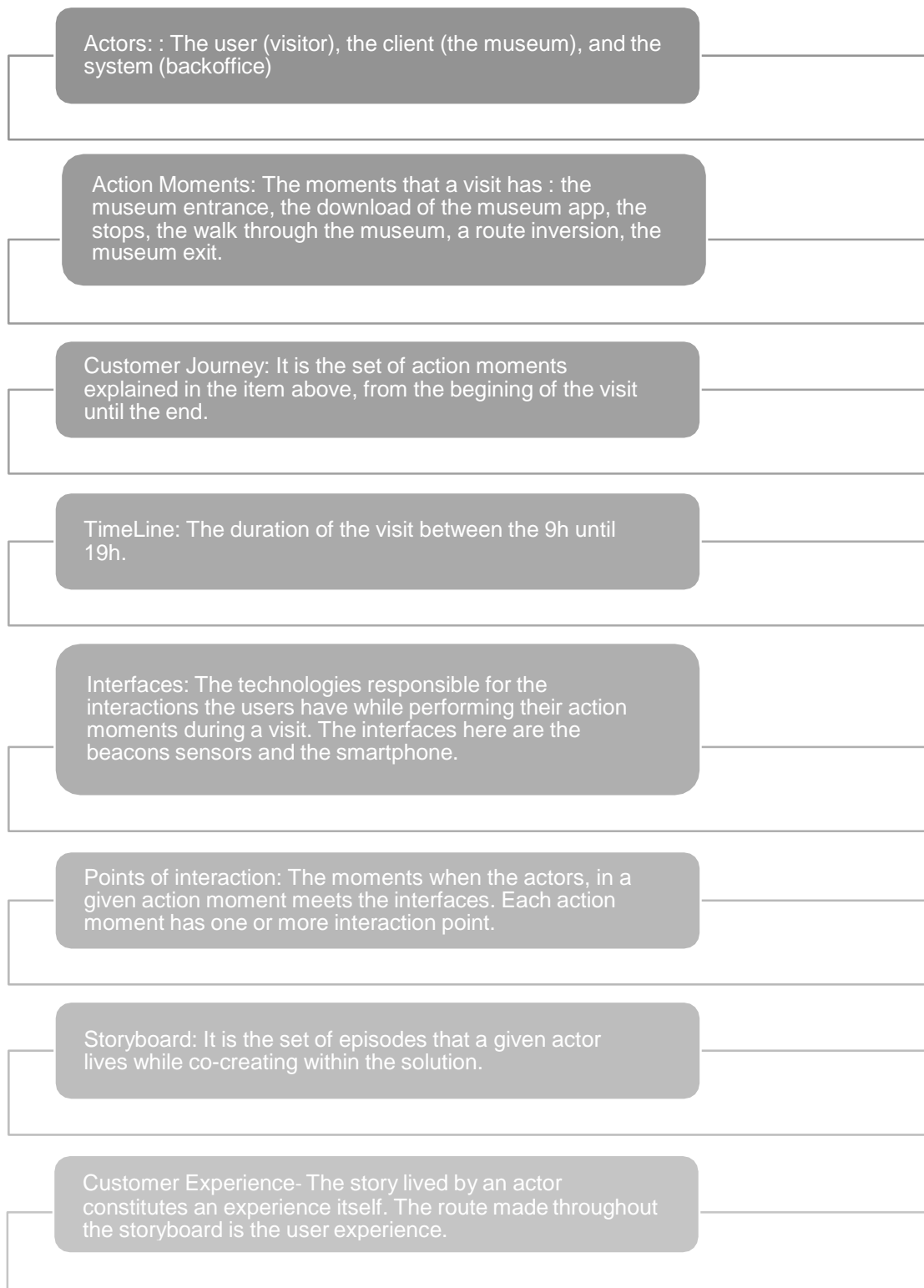


Figure 14 Methodology applied in the case study number two, culture area. Source: developed by the Author.

4.2.3. Conceptual Model application - *User/Visitor Perspective*

Exactly like the previous Case study, this Conceptual Model adapted for the User's perspective (visitor in this case) intends to show the customer journey (the superior arrow graphic) made throughout a visit that can be done during the Museum opening hours (9am-19pm). Also, the model evidences how the action moments (that forms the customer journey), actually result in episodes which are part of the storytelling (in the storyboard area)

At the moment the visitor downloads the app, a complete storytelling can be build, and the way the route is made by the visitor it will correspond to the customer experience lived while doing a visit guide in a given Museum or Cultural space. As soon as the visitor downloads the app, happens the first interaction with the interfaces (smartphone and beacon sensors), and to these interaction the researcher give the name of "points of interaction" – As previously explained in the methodology, points of interactions are the moments when the actors, in a given action moment meet the interfaces. Each action moment can have one or more point of interaction. The visitor, even though without knowing, will be sending information about its levels of satisfaction or in satisfaction, behavior and patterns during the time where the visit will take place.

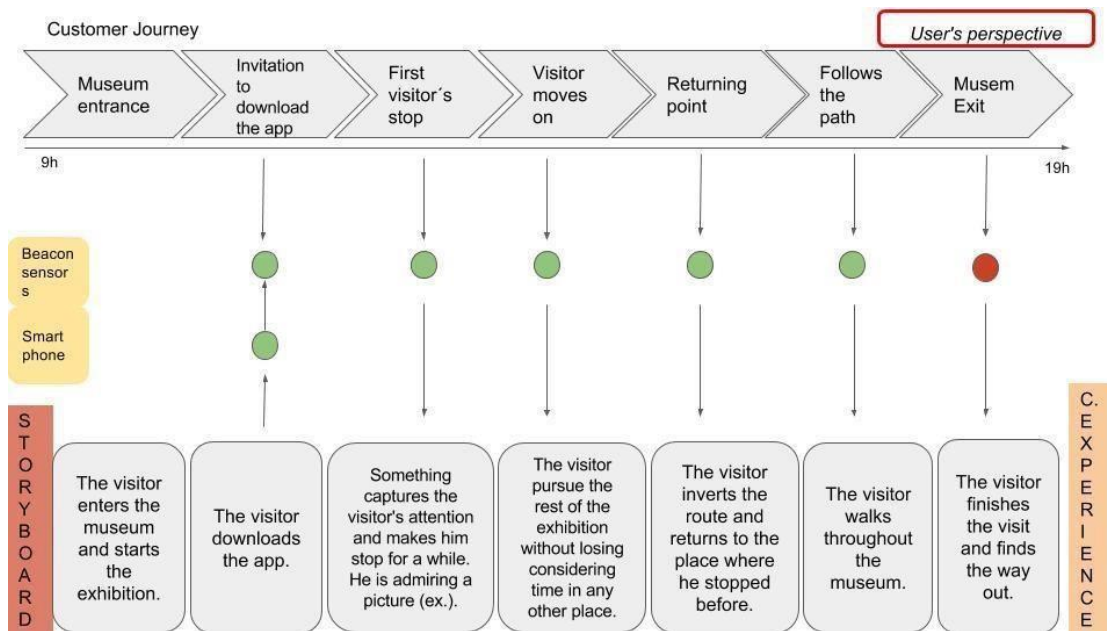


Figure 15 Conceptual Model applied on case study number 2, through User's perspective. Source: developed by the author.

4.2.4. Conceptual Model application - *Client (Museum) Perspective*

Regarding the other actor, the Client, the major benefit that can be extracted from this value co-creation process, is that, through the visitor's routes, the Client has access to all the data regarding visitor's behaviors, preference, as well as less appreciated areas. This data is sending in format of a story, as it can be observed in the storyboard area, above in the model.

Therefore, these information, allows the Museums to readapt a given exhibition, extending or having visitor's trends and patterns choices in consideration.

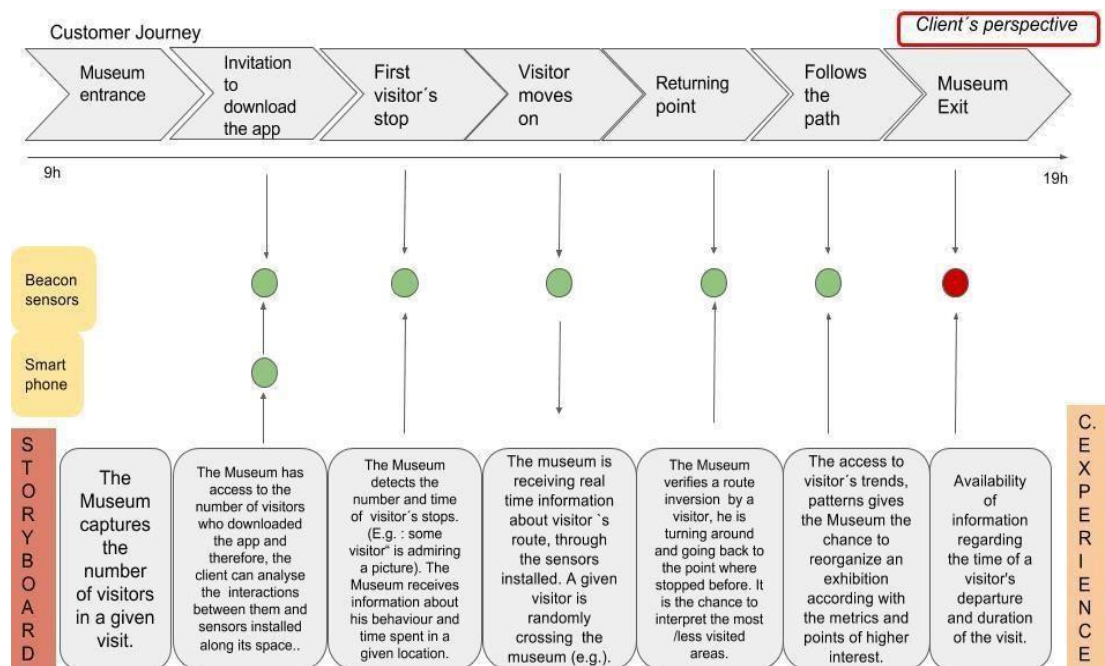


Figure 16 Conceptual Model applied on case study number 2, through Client's perspective. Source: developed by the author.

4.2.5. Conceptual Model application – *Back office Perspective*

The researcher called "the invisible perspective" to the Back office of the system installed. It is responsible for receiving and providing constantly information regarding the art pieces spread through the Museum. The trigger of information depends on visitor's moves and routes. This fact allows the Client to save energy in the sense the information is only displayed when visitors cross and meet an art piece.

The back office is also responsible for the storage of information sanded by the customer (the visitor in this case), which means the system possesses all the data issued by the customer. Concretely, the number of times the sensors were activated and have displayed content in the multiple places around the museum (number of visitors), the time spent in any place in particular, the duration of the whole visit.

The Client do not need to guess or interview their customers, the sensors and the analytics system will be uncharged of that.

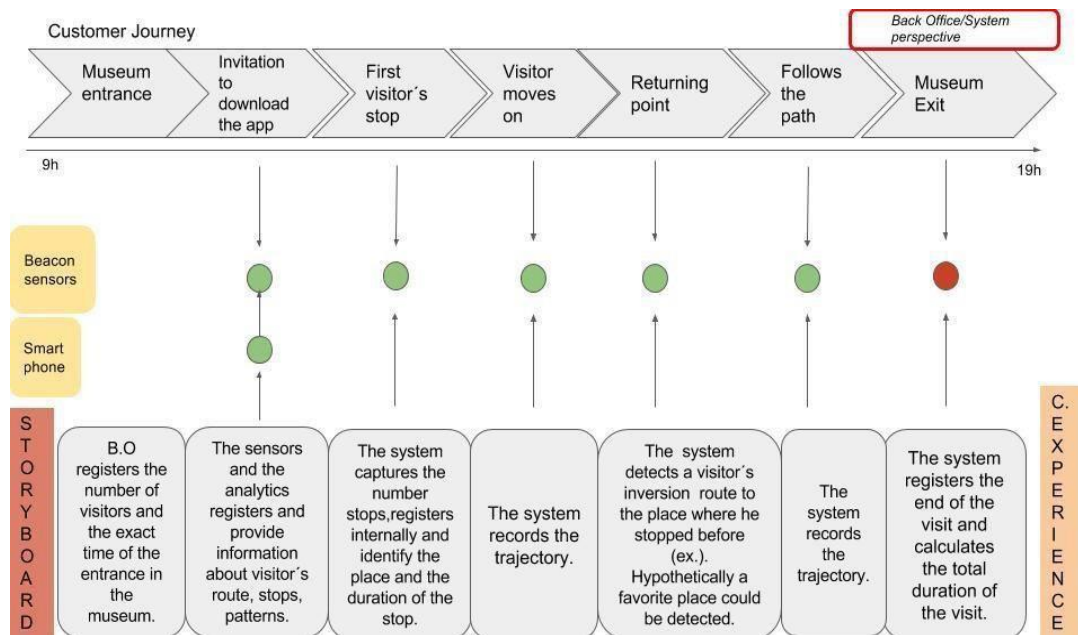


Figure 17 Conceptual Model applied on case study number 2, through BackOffice/system perspective.
Source: developed by the author.

4.2.6. Inputs from co-creation

The Museum Case

As well as the Case Study number one, these models can be designed for each one of the actors that forms the process of value co-creation. Each actor receive benefits regarding their partition and their inputs during a visit, when they are using the interfaces and exploring the Museum.

The purpose of the implementation of the strategy of the process of value co-creation itself is to provide a better experience and a better service for the actors involved, respectively, the customer/user (visitor) and the client (Museum).

Starting with the client, The Museum will be able to improve its performance in terms of offer and attractiveness, due to the fact that the institution has access to the information regarding customer's behavior, preferences and habits.

Therefore the Museum is able to use those extracted information and improve the customer experience in multiple ways:

- ☐ Through the reorganization in the order of display in a given exhibition;
- ☐ by adding or removing certain art pieces from an exhibition;
- ☐ Depending on the degree of success and adhesion the Museum can decide whether it should extend an exhibition later in time or rapidly change to another one that most pleases its target (The decision is made based on the statistic numbers such as number of visitors in a given exhibition and time of a visit that a Museum has access with the implementation of this process of value co-creation);
- Through the preadaptation and change of the art pieces and the further relocation of them in The areas considered to be "favorite" by the customers (most and longer visited);
- Through the knowledge and the analysis of the less attractive areas, with the goal of work on them, based on the customer's co-creation (feedback received from their behavior and

Patterns);

- ☐ Repositioning to create traffic in unseen areas;
- ☐ Provide a freeway in order to attack more and distinct target market;
- Create promotion campaigns such a “happy hour” for the people that is randomly walking Close to the Museum, e.g.

The Client (Museum) has access to a statistic information, regarding the number of visitors, the time spent in each point of the Museum, and the interactions and patterns made by them.

On one hand, this fact enhances any client to avoid display something to the wrong target, and on the other hand increases the possibility of achieve higher levels of satisfaction by those who visit the Museum.

Lastly, with the promotion campaigns the Museum increases the changes of touch in distinct and multiple new customers. In the end, and from a financial perspective, the Institution is endowed of practice the best prices dependent on their visitor’s trends and costumes.

Concerning the customer himself, who is, in this particular case, a visitor, has the opportunity of living a better experience while doing a visit to the Museum.

Despite the fact the visitor does not know the reality to which he is contributing for, meaning, the constantly sending of information about its movants and routes selected, time spend in each specific location, returning points, he is actually collaborating and providing himself a better experience for a future visit.

The next visit will have higher changes to please and surprise a visitor due to the application and adaptation of the inputs sending by himself (visitor).

5. Conclusion and Recommendations

The Master Thesis presents a structured and clear summary of what researcher intended do to as its main goal, and the central issues the research addressed. This paper exhibit the state-of-the-art of the research question, and clearly shows a gap in what concerns the collaboration between the two main concepts approached, the storytelling and the value co-creation.

The purpose of the Thesis was to analyze how the use of storytelling can contribute for the value co-creation process and, regarding that, two case studies were developed in order to explore and validate the research question.

The researcher has delimited the area of study to which has defined a conceptual model in order to promote the development of value co-creation through the use of storytelling and concepts such as: customer journey and customer experience.

The thesis talks about two potential monitoring systems, being both of them still in development and had not entered into the market yet. At this precisely moment, the solutions that FYI Digital Innovation have developed are beacon sensors which identify the human presence through the interaction with the smartphone (and its app mobile), and that trigger content therefrom. In the BackOffice system of the solution implemented (beacon sensors installed along a given space and connection with the smartphone) it is only possible to access to the type of content a given sensor displays and its percentage of battery.

Based on the insufficient information the BackOffice is able to provide to any institution which decides to adopt the referred solution, and being the researcher working as a Product Manager in FYI, the following ideas and conclusions have emerged:

- ☐ The Back office should provide the number of times each content was triggered, sanded to the customer to read, in order to identify and quantify the number of customers/users;
- ☐ The Back office should detect the time each content was triggered, in order to analyze the time each user dedicates in a given location/point;
- ☐ Since the back office identifies the code of each smartphone, then it should be prepared to identify inversion routes, meaning every time a user returns to a given point, and with that the system is able to identify behaviors and patterns of preference. Example: The user X returned twice to point Y. Detection of a preference pattern/behavior.

After the researcher presentation the new functionalities to be implemented in the back office system to FYI's informatics engineers, the team validated them in terms of execution and feasibility as well as highlighted the need to implement an analytics system.

The main conclusion and result that could be taken from this study, is the model development has the potential to be adapted to multiples products and innovative services, independently of the area of impact in the market.

The model is susceptible to be applied and reach several markets other markets, such as concerts, theatres, conferences and so on.

The goal of the thesis, within the model development, was to combine the two main concepts addressed, the storytelling and co-creation value, and promote innovative interactions and collaborations between these two.

The model developed has illustrated how the use of storytelling, together with the actor's performance during the customer journey, ends up in a customer experience and therefore contributes for the value co-creation of a given process.

The study also proved the value co-creation needs a minimum of two actors to guarantee the development of the co-creation itself. In both case studies addressed it was clear the role of each actor. The client and the user were common actors in both case studies, each one promoting and developing distinct interactions performed with the, also distinct interfaces. An interaction is defined as every moment when an actor meets and touches an interface, and the outcome of that is an episode. An episode can be described as a chapter part of a story.

As written before, the storytelling is the set of episodes wrote and lived by a given actor. A storytelling has a beginning, middle, and the end. The way a story is conducted, lived and experienced corresponds to the customer experience of the actor responsible for the story (the user experience).

Furthermore the author aims to apply the strategic tool - the Conceptual Model of Co-creation, to every company and entity linked to innovation in somehow, as well as accelerators, incubator places and Universities.

The author's intention is the improvement of the value co-creation process itself, in order to better create innovative solutions regarding the actual business needs.

5.1. Recommendations and future improvements

With these two case studies presented it was clear to understand that, even in such a distinct areas as the Health and Culture area proved to be, the monitoring system is equally useful and brings strong benefits for all the actors who are integral part of the process.

Concerning that, there are other markets able and willing to have innovative solutions like these two case studies demonstrated to be.

Also, the purpose that those technologies offer, can be adapted concerning the need, the target, the market, or the time. In this paper, it was explained how to co-create value in innovative solutions, specifically, in two monitoring systems. Talking about the monitoring system in health area, the main goal is to monitor and supervise everyone who needs extra care, and control them through the interaction between the users and the technology.

On the other hand, The Museum Case, and the monitoring system implemented there was different. In this case, the main goal is to increase the number of visitors, analyze their behaviors and patterns, increase the levels of attractiveness as well as decrease and anticipate exhibitions less appreciated.

Having this in mind, other type of institutions could benefit from the Co-creation Model developed. Example of that could be organizations and institutions and foundations which do conferences, concerts and theatre companies.

For these type of institutions, with the adoption of the Conceptual Model development – the value co-creation Model, they can predict and better estimate the most appropriate prices to practice as well as the best places to position and promote information.

How?

The decision-making is based on the user's behavior and pattern analysis. In this case, as the solution is not a monitoring system, but a system of anticipation and prediction of behavior, it is necessary to have at least two events in which a customer is present. This means that, based on the majority of the present guests/customers, the behaviors identified in a certain event, can be taken into account in a next event.

Example : In a given conference, the areas with more affluence were, the lateral parts of the space, and not the central and frontal part as it was expected (by the organization) to be.

With this information on the organization's side, the organization can improve the experience provided in the next conference in terms of:

- Better position the speakers (e.g.) for the majority of the listeners, regarding the majority's preference location;
- Practice the best and most appropriated prices according to the greater demand.

This technology used to analyze the customer's behavior and patterns is the same used and approached on the case studies.

With the beacon sensors installed around, e.g., along a room conference, and, exactly like the same strategy used in the Museum, the guests could be invited to download an app which shows the people who will talk, the schedule of the programmer, coffee breaks etc. This will allow a further study and analysis of which was the best "talker", with more listeners, which topic attracted more people, etc. The institution can have access to their guest's behavior while assisting a conference. All of these information allows the institution to anticipate their decision-making as well as guarantee a better service regarding their audience, in a next conference.

Through the use of the Heat Map, it can be detected the areas with more affluence, as well as the less appreciated, and based on that an organization can decide which prices should practice.

In case of free shows / conferences/ theatres/ seminars a given organization is empowered of better decision-making regarding in which place should position the information, a singer, a speaker, a team actors, etc.

In both cases the institutions have on their power, an improved decision-making capacity and more information than before.

6. References

- Aguilar, B. S. (2012). "La adquisición de la competencia narrativa através del cómic en la Escuela Primaria/The acquisition of narrative competence through comics in Primary School". *Revista Complutense de Educación*, 23(2), pp. 375.
- Allee, V. (2008). "The Value Network analysis and value conversion of tangible and intangible assets", *Journal of Intellectual Capital*, Vol.9 N°1, pp. 5-24.
- Arbietman, D., Lirov, E., Lirov, R., & Lirov, Y. (2001). "E-commerce for healthcare supply procurement". *Journal of Healthcare Information Management*, 15(1), pp.61-72.
- Ávila Filho, S. (2013). "Tools to Managerial Control to Mitigate the Dynamic Risk, and Effect of Crisis".
- Baum, J. A. C. Silverman, B. S. (2004). "Picking winners or building them". *The Journal of Business Venturing*, pp. 411-436.
- Boudens, C. J. (2005). "The story of work: A narrative analysis of workplace emotion." *Organization Studies*, 26 (9), pp.1285-1306.
- Breidbach C.F., Brodie R., Hollebeek L. (2014). "Beyond virtuality: From engagement platforms to engagement ecosystems". *Managing Service Quality*.
- Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). "Customer engagement: Conceptual domain, fundamental propositions, and implications for research." *Journal of Service Research*, 14 (3), pp. 252-271.
- Buhalis, D.; Foerste, M. (2015). "SoCoMo marketing for travel and tourism: Empowering co-creation of value". *Journal of Destination Marketing & Management*, 4(3), pp. 151- 161.
- Burgelman, R. A. (1983). "A model of the interaction of strategic behavior, corporate context, and the concept of strategy." *Academy of management Review*, 8 (1), pp. 61- 70.
- Campos, A. C., Mendes, J., do Valle, P. O., & Scott, N. (2016). "Co-creation experiences: Attention and memorability". *Journal of Travel & Tourism Marketing*, 33(9), pp. 1309-1336.
- Cardon, M.; Gregoire, D.; Stevens, C.; Patel, P. (2012). "Measuring entrepreneurial passion: Conceptual foundations and scale validation", *Journal of Business Venturing*.
- Chandler, A. D. (1990). "Strategy and structure: Chapters in the history of the industrial enterprise" *MIT press*, Vol. 120.
- Chen, Y., & Xie, J. (2008). "Online consumer review: Word-of-mouth as a new element of marketing communication mix." *Management science*, 54(3), pp.477-491.
- Colombo G., Massino (2008). "Strenghts and Weaknesses of Academic Startups: A Conceptual Model", *IEEE Transactions on Engineering Management*.
- Costa, E.; Pinto Ferreira, J. J. (2012). "A reference model perspective for conventional business narrative analysis: An essay on an entrepreneurial narrative", *African Journal of Business Management*, Vol.6, pp. 8199-8219.
- Csaszar, F. Nussbaum, M.; Sepulveda, M. (2006). "Strategic and cognitive criteria for the selection of startups", *Technovation*, Vol.26, pp. 151-161.
- De Matos, C. A., & Rossi, C. A. V. (2008). "Word-of-mouth communications in marketing: a meta-analytic review of the antecedents and moderators." *Journal of the Academy of Marketing Science*, 36(4), pp. 578-596.

- Doddy, Sarah (2015). "3 Ways storytelling can improve your product development process". Article from <http://www.sarahdoddy.com/3-ways-storytelling-can-improve-your-product-development-process>.
- Durrance, B. (1997). "Stories at work." *Training & Development*, 51 (2), pp. 25-30.
- Evans, M. "Storytelling for Startups: How Fast-Growing Companies Can Embrace the Power of Story-Driven Marketing". *Kindle Edition*.
- Gibbert, M., Ruigrok, W., & Wicki, B. (2008). "What passes as a rigorous case study?" *Strategic management journal*, 29 (13), pp. 1465-1474.
- Godes, D., & Mayzlin, D. (2004). "Using online conversations to study word-of-mouth communication." *Marketing science*, 23(4), pp. 545-560.
- Goulding, I. (1983). "New product development: A literature review." *European Journal of Marketing*, 17 (3), pp. 3-30.
- Goyal, A., GAO, J., Deng, H., & Chang, Y. (2016, February). "Query Understanding for Search on All Devices at WSDM 2016". *Proceedings of the Ninth ACM International Conference on Web Search and Data Mining* (pp. 691-692). ACM.
- Greenberg, P. (2013). "The narrative is the thing: the art of corporate storytelling", *ZDNet*, pp. 1-14.
- Haar, N. E., Starr, J., & MacMillan, I. C. (1989). "Informal risk capital investors: investment patterns on the East Coast of the USA". *Journal of Business Venturing*, 3(1), pp. 11-29.
- Hansen, A. V., & Hansen, A. V. (2017). "What stories unfold: empirically grasping value co-creation". *European Business Review*, 29(1), pp. 2-14
- Heiko Wieland, Kaisa Koskela-Huotari & Stephen L. Vargo (2015). "Extending actor participation in value creation: an institutional view". *Journal of Strategic Marketing*.
- Helminen, P., Mäkinen, S., & Holopainen, M. (2016). "Better user-developer communication in service development by collaborative physical modelling". *International Journal of Services and Operations Management*, 23(2), pp. 169-186.
- Holbrook, M. B., & Hirschman, E. C. (1982). "The experiential aspects of consumption: Consumer fantasies, feelings, and fun." *Journal of consumer research*, 9 (2), pp. 132- 140.
- Holmlid, S., Mattelmäki, T., Visser, F. S., & Vaajakallio, K. (2015). "Co-creative practices in service innovation". *The Handbook of Service Innovation*, pp. 545-574.
- Hyvarinen, M. (2007). "Analyzing Narratives and Story-Telling", *Alasuurati: Social Research Methods (SAGE Handbook)*, pp. 447.
- Kaye, B., & Jacobson, B. (1999). "True tales and tall tales." *Training and Development*, 53 (3), pp. 44-52.
- Koen, P.; Ajamian, G.; Boyce, S.; Clamen, A.; Fisher, E.; Fountoulakis, S.; Jonhson, A.; Puri, P.; Seibert, R.. (2002). "Fuzzy Front End: Effective Methods, Tools, and Techniques", *The PDMA Toolbook for New Product Development*, pp. 5-35.
- Kumar, V., Petersen, J. A., & Leone, R. P. (2010). "Driving profitability by encouraging customer referrals: who, when, and how." *Journal of Marketing*, 74 (5), pp. 1-17.
- Labov, W. (1997). "Some Further Steps in Narrative Analysis", *the Journal of Narrative and Life Science*, Vol.7, pp. 395-415.
- Lacoste, S., & La Rocca, A. (2015). "Commentary on "Storytelling by the sales force and its effect on buyer-seller exchange" by David Gilliam and Karen Flaherty". *Industrial Marketing Management*, 46, pp. 143-146.

- Laitinen, E. K. (2016). "Financial failure of a startup: a simulation approach". *International Journal of Management and Enterprise Development*, 15(4), pp. 282-307.
- Leclercq, T., Hammedi, W., & Poncin, I. (2016). "Ten years of value cocreation: An integrative review". *Recherche et Applications en Marketing (English Edition)*, 31(3), pp. 26-60.
- Lemon, K. N., & Verhoef, P. C. (2016). "Understanding customer experience throughout the customer journey". *Journal of Marketing*, 80(6), pp. 69-96.
- Leon, R. D., & Vatamanescu, E. M. (2015, September). "Storytelling as a Knowledge Strategy in Higher Education Institutions". *European Conference on Knowledge Management* (p. 458).
- Lucas, K.; Kerrick, A. S.; Haugen, J.; Crider, J. C. (2016). "Communicating Entrepreneurial Passion: Personal Passion vs. Perceived Passion in Venture Pitches", *IEEE Transactions on Professional Communication*, Vol.0.
- Lusch, R. P., Vargo, S. L., & O'Brien, M. (2006). "Competing through service: Insights from service-dominant logic." *Journal of Retailing*, 83 (1), pp. 5–18.
- Lusch, R. P., & Vargo, S. L. (Eds.) (2006). "The service dominant logic of marketing: Dialog, debate and directions." *Armonk, NY: M.I. Sharpe*
- Martens, M. L., Jennings, J. E., & Jennings, P. D. (2007). "Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition". *Academy of Management Journal*, 50(5), pp. 1107-1132.
- Martens, M. L., Jennings, J. E., & Jennings, P. D. (2007). "Entrepreneurial strategy narratives and resource acquisition in ipos". In *Academy of Management Proceedings*, Vol. 2007, No. 1, pp. 1-6.
- Martínez, L. V., & del Moral Pérez, M. E. (2014). "Digital storytelling: una nueva estrategia para narrar historias y adquirir competencias por parte de los futuros maestros/Digital storytelling: a new strategy for storytelling and acquired competencies by future teachers." *Revista Complutense de Educación*, 25(1), pp. 115.
- Meyer, C., & Schwager, A. (2007). "Customer Experience". *Harvard business review*, 1- 11.
- Nenonen, S., Rasila, H., Junnonen, J. M., & Kärnä, S. (2008). "Customer Journey—a method to investigate user experience". *Proceedings of the Euro FM Conference Manchester*, pp. 54-63.
- Norlyk, B., Lundholt, M. W., & Hansen, P. K. (2014). "Corporate storytelling." *Handbook of narratology. 2nd ed. Berlin/Boston: Walter de Gruyter*, 1, pp. 105-114.
- Normann, R., & Ramirez, R. (1993). "From value chain to value constellation." *Harvard Business Review*, pp. 65 – 77.
- Normann, R. (2001). *Reframing business: When the map changes the landscape*. John Wiley & Sons. Oxford dictionary.
- Osterwalder, A., & Pigneur, Y. (2010). "Business model generation: a handbook for visionaries, game changers, and challengers." *John Wiley & Sons*.
- Parhankangas, A.; Ehrlich, M. (2014). "How entrepreneurs seduce business angels: An impression management approach", *Journal of Business Venturing* 29, pp. 543– 564.
- Payne A., Storbacka K., Frow P., (2007). "Managing the co-creation of value", *Academy of Marketing Science*.
- Penrose, E. T. (1960). "The growth of the firm—a case study: the Hercules Powder Company." *Business History Review*, 34(1), pp. 1-23.
- Pettigrew, A. M. (2014). "The politics of organizational decision-making." *Routledge*.

- Pine, B. J., & Gilmore, J. H. (1998). "Welcome to the experience economy." *Harvard business review*, 76, pp. 97-105.
- Prahalad, C. K., & Ramaswamy, V. (2004). "Co-creation experiences: The next practice in value creation." *Journal of interactive marketing*, 18(3), pp. 5-14.
- Price, R. A., Wrigley, C., & Straker, K. (2015). "Not just what they want, but why they want it: Traditional market research to deep customer insights". *Qualitative Market Research: An International Journal*, 18(2), pp. 230-248.
- Rajasekar, S., Philominathan, P., & Chinnathambi, V. (2006). "Research methodology." *Journal of arXiv preprint physics/0601009*.
- Schembri, S., & Latimer, L. (2016). "Online brand communities: constructing and co-constructing brand culture". *Journal of Marketing Management*, 32(7-8), pp. 628-651.
- Schmitt, B., Brakus, J. J., & Zarantonello, L. (2015). "From experiential psychology to consumer experience." *Journal of Consumer Psychology*, 25(1), pp. 166-171.
- Shao, W., Jones, R. G., & Grace, D. (2015). "Brandscapes: contrasting corporate-generated versus consumer-generated media in the creation of brand meaning". *Marketing Intelligence & Planning*, 33(3), pp. 414-443.
- Simon, J. P., & Simon, J. P. (2016). "User generated content—users, community of users and firms: toward new sources of co-innovation?". *info*, 18(6), pp. 4-25.
- Stark, D. (2011). "The sense of dissonance: Accounts of worth in economic life". *Princeton University Press*.
- Thompson, C. J., Locander, W. B., & Pollio, H. R. (1989). "Putting consumer experience back into consumer research: The philosophy and method of existential-phenomenology." *Journal of consumer research*, 16(2), pp. 133-146.
- Tobin, PKJ., and Sandroock, J., 2007. "Let me tell you a story: storyboards and their use for knowledge sharing in an African case study". *Proceedings of the European Conference on Knowledge Management, Barcelona, Spain*
- Vaara, E., & Tienari, J. (2011). "On the narrative construction of multinational corporations: An antenarrative analysis of legitimation and resistance in a cross-border merger". *Organization Science*, 22(2), pp. 370-390.
- Villalustre Martínez L., Del Moral Pérez M.E. (2014). "Digital storytelling: A new strategy for storytelling and acquired competencies by future teachers". *Revista Complutense de Educacion*.
- Vink, J.. (2016). "Storytelling", *Design Research Techniques*, pp. 1-10.
- Volker, J. X.; Philips, M. D.; Anderson, J. S. (2011). "Storytelling: A Portal to Understanding Entrepreneurial Organizations", *Journal of Marketing Development and Competitiveness*, Vol.5.
- Von Wallpach, S., Hemetsberger, A., & Espersen, P. (2017). "Performing identities: Processes of brand and stakeholder identity co-construction". *Journal of Business Research*, 70, pp. 443-452.
- Voyer, B. G., Kastanakis, M. N., & Rhode, A. K. (2017). "Co-creating stakeholder and brand identities: A cross-cultural consumer perspective". *Journal of Business Research*, 70, pp. 399-410.
- Werven Van, R.; Bouwmeester, O.; Cornelissen P., J. (2015). "The power of arguments: How entrepreneurs convince stakeholders of the legitimate distinctiveness of their ventures", *Journal of Business Venturing*, pp. 616–631.
- Wieland, H., Koskela-Huotari, K., & Vargo, S. L. (2016). "Extending actor participation in value creation: an institutional view". *Journal of Strategic Marketing*, 24(3-4), pp. 210- 226.

Yoon, K., & Sims, J. D. (2014). "Integrating Social Media and Traditional CRM: Toward." *Harnessing the Power of Social Media and Web Analytics*, pp. 103.

Zátori, A., & Zátori, A. (2016). "Exploring the value co-creation process on guided tours (the 'AIM-model') and the experience-centric management approach". *International Journal of Culture, Tourism and Hospitality Research*, 10(4), pp. 377-395.

APPENDICES

Table 1- Literature Review with storytelling (keyword)

LITERATURE REVIEW				
Authors	Title	Year	Source title	Abstract
Costa E., Pinto Ferreira J.J	A reference model perspective for conventional business narrative analysis	2012	African Journal of Business Management	narrative analysis, case study, Timmons model, BMC, BNML
Labov W.	Some Further Steps in Narrative Analysis	1997	Journal of Narrative and Life History	narrative analysis, story- telling, narrative model, structure, personal experience, causality
X.Volker J., Philips M., Anderson S.	Storytelling: A Portal to Understanding Entrepreneurial Organizations	2011	Journal of Marketing Development and Competitiveness	storytelling, organizations, management, nondeliberate and deliberate storytelling
Allee Associates V., Martinez	Value network analysis and value conversion of tangible and intangible assets	2008	Journal of Intellectual Capital	value analysis, intangible and tangible assets
Hyvarinen Matii	Analyzing Narratives and Story-telling	2007	The Sage Handbook of Social Research Methods	narrative, factual resources, labovian personal narrative, stories, process types, expectation analysis
Martens M., Jennings J.	Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition	2007	Academy of Management Journal	narrative approach, resources acquisition, effects of storytelling
Koen P. A., Greg M. Ajamian, Boyce S., Clamen A., Fisher E.,	Fuzzy Front End: Effective Methods, Tools, and Techniques		The PDMA Toolbook for New Product Development	fuzzy front end, new product development, literature review, methods, tools, techniques
Ávila Filho S.	Tools to managerial control to mitigate the dynamic risk, and effect of crisis	2013	AIChE Annual Meeting, Conference Proceedings	Criteria for Risk Management of the business need to be changed after detecting that natural resources are limited, that processes are more complex, and that risk increases with the scale of production.

Stark D., Beunza D., Girard M., Lukács J.	The sense of dissonance: Accounts of worth in economic life	2011	The Sense of Dissonance: Accounts of Worth in Economic Life	The resources to limiting and clarifying the logics used for evaluating worth in organizations. This paper says that firms in managing change, would be better if they allowed multiple logics of worth and did not discourage uncertainty.
Shaffer G.	Business development matters most	2002	Lightwave	The business development in telecommunications, optical equipment. The criterion for judging technologies is the ability to enable dramatic improvement in customer economics.
Arbietman D., Lirov E., Lirov R., Lirov Y.	E-commerce for healthcare supply procurement.	2001	Journal of healthcare information management	The study brings a new B2B e-commerce solution for the healthcare supply chain.
Leon R.D., Vatamanescu E.M.	Storytelling as a knowledge strategy in higher education institutions	2015	Proceedings of the European Conference on Knowledge Management	The importance and the use of storytelling as a strategy in higher education systems. The paper talks about expertise, skills and knowledge shared inside educational institutions.
Villalustre Martínez L., Del Moral Pérez M.E.	Digital storytelling: A new strategy for storytelling and acquired competencies by future teachers	2014	Revista Complutense de Educacion	The storytelling in digital format as an innovative way of narrative in organizations. The paper shows that a great number of students have high performance in creative and digital competences, while less than half have a high level of narrative skills.
Segovia Aguilar B.	The acquisition of narrative competence through comics in Primary School	2012	Revista Complutense de Educacion	Analysis of narrative in elementary school and the way it is performed through comics. The act of teach and learn stories through images, and understand the language of comics.
Vaara E., Tienari J.	On the narrative construction of multinational corporations:	2011	Organization Science	The cultural speech studies in organizations and the construction of narrative in multinationals used to legitimate or combat the change. The dialectical dynamics of storytelling.
Tobin P., Sandrock J.	Let me tell you a story: Storyboards and their use for knowledge sharing in an African case study	2007	Proceedings of the European Conference on Knowledge Management	A South Africa case-study demonstrates the importance of the use of storyboards, and the great opportunity to improve, in this case, the world-class performance with the use of storytelling.

Table 2 - Literature Review with Co-creation (keyword)

Literature Review				
Authors	Title	Year	Source title	Abstract
Breidbach C.F., Brodie R., Hollebeek L.	Beyond virtuality: From engagement platforms to engagement ecosystems	2014	Managing Service Quality	The role of “engagement platforms”, physical or virtual customer touch points where actors exchange resources and co-create value.
Buhalis D., Foerste M.	SoCoMo marketing for travel and tourism: Empowering co-creation of value	2015	Journal of Destination Marketing and Management	A solution for tourism that revolutionizes the offer and co-creates dynamically with consumers, through sensors and technologies that recognize tourist's location.
Price R.A., Wrigley C., Straker K.	Not just what they want, but why they want it: Traditional market research to deep customer insights	2015	Qualitative Market Research	The customer needs, problems and behaviours that can turn on new business opportunities. Understanding the reasons why customers do or do not engage with businesses.
Shao W., Jones R.G., Grace D.	Brandscapes: Contrasting corporate-generated versus consumer-generated media in the creation of brand meaning	2015	Marketing Intelligence and Planning	Consumer co-creation experiences in the context of Facebook/twitter brand communities, brand strategy (marketing mix) and brand meaning expressed via corporate-generated online media (corporate web site).
Schembri S., Latimer L.	Oline brand communities: constructing and co-constructing brand culture	2016	Journal of Marketing Management	The online communities co-create through construction of profiles, emotional relationships, storytelling and ritualistic practices. The different actions and interactions performed.
Lemon K.N., Verhoef P.C.	Understanding customer experience throughout the customer journey	2016	Journal of Marketing	Analysis of customer experience and the customer journey, and customer points of interaction in multiple channels and media.
Campos A.C., Mendes J., do Valle P.O., Scott N.	Co-Creation Experiences: Attention and Memorability	2016	Journal of Travel and Tourism Marketing	A study of interviews with tourists who participated in a ‘swimming with dolphins’ explored the value co-creation in enhancing attention and the memorability of the experience.
Lacoste S., La Rocca A.	Commentary on "Storytelling by the sales force and its effect on buyer-seller exchange"	2015	Industrial Marketing Management	The use of storytelling in customer-supplier relationships.

Voyer B.G., Kastanakis M.N., Rhode A.K.	Co-creating stakeholder and brand identities: A cross-cultural consumer perspective	2017	Journal of Business Research	The understanding of how cultural differences contributes for identity development and co-construction, from a brand, consumer, and stakeholders.
Hansen A.V.	What stories unfold: empirically grasping value co-creation	2017	European Business Review	Analysis of value co-creation and narrative methodology during a long-term service relationship.
von Wallpach S., Hemetsberger A., Espersen P.	Performing identities: Processes of brand and stakeholder identity co- construction	2017	Journal of Business Research	The co-construction of stakeholder and brand identity in the context of the LEGO brand.
Leclercq T., Hammedi W., Poncin I.	Ten years of value cocreation: An integrative review	2016	Recherche et Applications en Marketing	An overview of 10 years of value co- creation definitions, drivers and relationships.
Wieland H., Koskela-Huotari K., Vargo S.L.	Extending actor participation in value creation: an institutional view	2016	Journal of Strategic Marketing	Actor's contribution and evaluation in the process of value creation.
Helminen P., Holopainen M., Mäkinen S.	Better user- developer communication in service development by collaborative physical modelling	2016	International Journal of Services and Operations Management	An improvement on the communication between users and developers of a given service.
Zátori A.	Exploring the value co- creation process on guided tours (the 'AIM- model') and the experience- centric management approach	2016	International Journal of Culture, Tourism, and Hospitality Research	The value co-creation on tour guides.
Simon J.P.	User generated content :users, community of users and firms: toward new sources of co- innovation?	2016	Emerald Group Publishing Limited	The role of users in the creation and share of digital contents (digital video, blogging, podcasting, forums, social networking, social media and mobile phone photograph), and their potential role as co-innovators.
Holmlid S., Mattelmäki T., Visser F.S., Vaajakallio K.	Co-creative practices in service innovation	2015	The Handbook of Service Innovation	Co-creative practices that can be used to f service innovation.
Nenonen, S., Rasila, H., Junnonen, J. M., & Kärnä, S.	Customer Journey– a method to investigate user experience	2008	In Proceedings of the Euro FM Conference Manchester	Analysis of the customer journey as a diagram and its contribution for user experience.